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ORIGINAL LECTURES.

STRICTURE OF THE RECTUM; INTESTINAL OBSTRUCTION; INGUINAL COLOTOMY.

A Clinical Lecture delivered at the New York Post-Graduate Medical School Hospital.

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GENTLEMEN: The case I shall show you to-day is one of great interest, being an example of the most serious form of disease of the rectum you will ever encounter except cancer. The disease is generally incurable and often fatal, but only after long suffering.

The patient is forty-two years old, married, and the mother of one child twenty-one years of age. She first came under my observation nine years ago, at which time she gave the following history: She had always suffered from obstinate constipation, and several years before had been relieved of an impaction by artificial means. The rectal symptoms began six years after marriage, or seven years before I saw her, and sixteen years ago.

Nine years ago she was in much the same condition as you now see her—emaciated, nervous, and nearly worn out with obstruction. There was at that time, as now, a constant discharge of foul-smelling pus from the anus, an entire loss of control by the sphincters, and great difficulty in securing a movement of the bowels, even by cathartics. There were then several fistulous openings around the anus, and one track in the recto-vaginal septum which communicated with both cavities.

At an inch and a half from the anus there was a stricture admitting the end of the index finger, and above and below this much ulceration. The stricture was not of very great extent, nor was it very unyielding; and, in fact, the mechanical obstruction was of less grave moment than the exhausting suppuration and incontinence.

Her condition to-day is much the same as then. There is still a stricture at the same point which will admit my index finger after slight pressure. Above the stricture as far as I can feel, the rectum is denuded of its mucous membrane and ulcerated. There is an abscess cavity behind the anus with an external opening in the median line. But there are other grave conditions present now which did not exist then.

The patient calls my attention to the distended condition of the abdomen and begs me to allow her to take her customary cathartic that she may reduce it. She tells me it is always so before she purges herself; but that after the medicine has acted it is perfectly flat, as you would expect it to be in a person so emaciated. She tells me that she usually does this twice a week, taking her medicine in the evening and spending from twenty-four to thirty-six hours in unloading the bowels, often sitting on the commode for two or three hours at a time. The movements at such times are at first solid, and often pieces will come away as large as her thumb, though sometimes the evacuation is moulded into the tape-like shape so often spoken of. After the solid matter has passed the fluid movements begin and continue for many hours, ending in the evacuation of a large amount of retained fæces and in great exhaustion of the patient. Note what she says about the size of the solid fæcal masses she passes, as I shall refer to it again.

The patient also refers to a lump, the size of two eggs, which occasionally appears in the left inguinal region and causes her a good deal of pain. This, she says, comes and goes and is not now present, but when I examine I find immediately under the abdominal wall a hard, nodular tumor, the size of my closed fist, which is somewhat movable, is tender on pressure, and is yet too resistant to be indented with the fingers. This is probably a fæcal impaction in the sigmoid flexure, and, from its hardness, one of long standing.

One other point of difference between her condition now and nine years ago. The physician who has had her in charge for the past two years tells me she has Bright's disease. Her urine has already been examined in the hospital several times, and on two occasions a trace of albumin has been found. I know that at one time a year ago the albumin was very marked. We can go further, and say that the patient probably has the waxy kidney so often found associated with prolonged suppuration.

This, then, is the history of the patient's disease and her present condition: sixteen years of suffering with incontinence of fæces, and with a foul discharge from the rectum; constant pain; and, in the end, chronic intestinal obstruction—what I judge to be an impacted colon—and waxy kidneys.

Let us now study the cause which has produced this result, and I wish to lead you to separate in your minds, as far as possible, the condition of ulceration of the rectum from that of stricture. It is true they are generally associated, that either may be the cause of the other, and yet the point I wish most strongly to impress upon you now is, that in just such a case as this, where we have both stricture and ulceration, the two conditions may be of vastly different relative importance. You saw me a few weeks ago exsect a stricture of the rectum though it had not advanced far enough to cause any obstruction and there was but slight ulceration. We were then dealing with malignant disease. You have also seen here a congenital stricture, which was so tight as to threaten complete obstruction at any moment, and associated with which there was no ulceration. You see to-day a stricture tight enough to make trouble, and yet through which solid fæces the size of the thumb will pass; and this stricture, grave as it is, is a matter of almost trivial importance in comparison with the ulcer-

ation and suppuration which are associated with it, and in all probability caused it. In fact, I am not at all sure that the stricture we feel is the only one, for the same process which has caused this may as easily have caused another; and a stricture as low down as this, with a calibre admitting the index finger, will not generally give rise to the degree of intestinal obstruction from which this patient is suffering.

As to the nature of the ulceration which is killing this patient I do not think there is much doubt. There was no venereal history for six years after marriage and up to the time when this trouble began. There are none of the other usual causes of ulceration such as cancer, tuberculosis, or dysentery. The disease in all probability began as a simple erosion, possibly only a fissure, due to chronic constipation, made worse by impaction, accelerated by unsurgical treatment, and steadily advancing from the day of its formation till now.

You will see many such strictures as this in my service, though a smaller proportion perhaps than in private practice, and you have already learned not to jump to the conclusion that a patient must have had syphilis because she has a stricture of the rectum which is not cancerous. Any ulcerative process, if sufficiently extensive, may result in stricture, and there are many causes of ulceration besides venereal disease. I have seen ulceration, deep and extensive, result from the mere pressure of hardened fæces in the rectum, and such a mass as is now impacted in this patient's sigmoid flexure may easily lead to fatal perforation. I have seen also severe stricture result from neglected hæmorrhoidal ulceration, and to one of these causes, or both combined, I have no doubt the extensive disease in this case is due.

I will give you now a short account of the treatment this patient has had in the past. For the first seven years, the only time when a cure was possible, nothing radical was done, though the usual applications were made. Then nine years ago she was brought to me, as I have said, in much the same condition as now, and at that time it was a grave question whether a colotomy should not be done. In place of that I did a posterior linear proctotomy, dividing the stricture and the anus down to the tip of the coccyx; hoping to cure the stricture by subsequent dilatation, and the ulcer by the rest given to the parts and by subsequent applications. At that time the entire ulcer could be reached, and our efforts were in great measure successful. Six weeks after the operation I find that the following note was made: "The patient has gained much in flesh and general condition, and returns to her home with the incision not yet healed, but she is perfectly comfortable in every respect. Has natural, full-sized, painless passages, and has not been troubled by incontinence since operation." Six months later she again returned to me for treatment. The general condition was excellent. There was a marked decrease in the stricture tissue, and there had been no pain on defecation since the operation. But she was still troubled by the discharge of pus from the bowel, and the incision had not entirely healed. Treatment was, therefore, begun to cure the ulceration—rest in bed, fluid diet, and local applications. After three months she again left the city with the ulceration entirely healed except in the line of the incision.

Two years later I find the following note: "Some contraction, general and local condition excellent." Three years and a half ago I find the last note of her condition: "Tight annular stricture at one inch from anus. Patient to return for treatment." This she has now done. Her history for the past three and a halt years has been that of steady progress in the disease. The stricture was cut again two years ago, but whether thoroughly divided or only partly I do not know. Fresh abscesses have formed and added greatly to her suffering, and she is now in the condition I have described.

In such a case as this there are three possible courses of treatment to choose from—incision, excision, and colotomy, and it is for us to consider which will do the greatest good.

I can again divide this stricture completely down to the sacrum in the median line behind, open up the abscess cavity, divide the fistulæ, and treat it as an open wound. This means many weeks of confinement to bed, much exhaustion, fresh suppuration, and no little danger, with the kidneys in the condition they are. But, worse than all this, I fear it would not mean a cure of the extensive ulceration. The stricture without the ulcer could be easily handled, though in her present condition any such operation is attended by considerable danger; but dividing the stricture would do little good unless the ulcer could be made to heal by subsequent treatment, and of this I have no hope.

We have now in the hospital a case which you have seen me operate upon where such a stricture as this has been completely excised, and I could do that operation in the present case. But in that case the mucous membrane both above and below the disease was sound, and the sphincters were unimpaired, so that after removing the cicatricial tissue it remained only to unite the two healthy ends of the gut and the disease was cured. Leaving out of consideration the great immediate risk of such an operation in this case, we could hope for no such result, for we could hardly remove the entire ulcerated surface, and even if we did, we should still be left with incontinence of fæces, for the sphincters have been irreparably ruined.

By colotomy, on the other hand, we shall hope to do this: Relieve the sufferer of the pain and danger which now necessarily attend the discharge of fæces, put an end to the formation of abscesses, and cause the ulceration to heal merely by doing away with the irritation of fæcal matter. And this we shall hope to accomplish with the least possible risk of surgical accident; for I consider that the operation of left inguinal colotomy would be attended by less shock than either of the other operations.

You may ask, Would the patient's condition with an artificial anus in the left groin be better than it is now? and I answer, unhesitatingly, Infinitely better. You cannot possibly be any more prejudiced against this procedure than I once was, but that prejudice has been entirely removed by clinical experience. The idea that an artificial anus properly made renders the patient loathsome to herself and friends, can hardly find support amongst those who are called upon to see many of these cases. I have too many patients now alive and comfortable, attending to their various duties in life—some of them having only one passage a day, and others having a passage only after a laxative—upon whom

I have done this operation, for me to hesitate now from any sentiment.

I am asked as to the proper treatment of the fæcal impaction. With a colotomy the answer is easy, for if on cutting down to the gut I find it best to open it below the fæcal mass, I shall do so, probably breaking up the mass at the same time and allowing it to escape through the artificial anus when the gut is finally opened. If, on the other hand, it seems better to open the gut above the mass, I shall subsequently break it up and wash it out through the rectum by working at it from above. By either of the other two operations proposed the mass in itself increases the danger. I have already referred to the fact that it might by its presence cause a fatal perforation. We also know that in every such case of chronic obstruction the bowel above the disease is dilated and thinned, sometimes to a remarkable extent. To attempt, therefore, the removal of such a mass, either by cathartics to increase peristalsis, or by injections of large quantities of water to soften it, would be an operation by no means free from danger. In fact, the patient's habit of taking frequent purgatives may at any time cause a fatal result. I have known this to happen in one case identical with this, while the patient and myself were trying to arrange a convenient time for a colotomy. Sunday was his day for evacuating his bowel, and he had taken strong purgatives every Saturday night for months. But the effort was made once too often; the dose was taken as usual, and in a few hours he was dead from rupture of the bowel above the disease.

We will now etherize this patient, make a more thorough examination under ether than is possible without it, and will then operate by the method which seems best.

The patient being under ether in the lithotomy position, you observe first these fistulous openings behind the anus. The director does not pass into any abscess cavity; on the contrary, the tracks are found to be superficial, and as I lay them open one after the other we have a resulting incision only about two inches long and half an inch deep in the median line behind the anus. In other words, the sphincter has once more been cut, but this is evidently not as grave a condition as I had been led to suppose.

Next I examine the rectum. At one inch from the anus I find a tight stricture but of limited extent, and as I gently force my finger through it I find extensive ulceration above, but not to any such degree as would account for the patient's history. Where does this perpetual discharge of foul pus come from, and why is she suffering from intestinal obstruction? As I force my finger higher up the bowel, I find that there is no rectal pouch, but that the rectum is occluded by a round, smooth mass pressing upon it from in front. I find it impossible to get beyond this mass, but as I place my left hand on the abdomen and practise conjoined manipulation I find that my supposed fæcal impaction resolves itself into an immense abscess in the region of the left broad ligament; and pressure in the pelvis causes the tumor to decrease in size while there is a flow of six or eight ounces of fetid pus from the rectum, forced out by the pressure on the abdominal tumor. In this way, then, are the doubtful points in this case explained. There is a second stricture to account for the obstruction, and the fæcal impaction resolves itself into a large pelvic abscess which opens into the rectum, furnishes the foul discharge which I supposed to be due to ulceration, and obstructs the rectum by pressure.

And now what shall we do for the patient? She has an old stricture of the rectum. She has fistulæ which I have just cut. She has a pelvic abscess on the left side which is exhausting her by suppuration. She has chronic intestinal obstruction and amyloid degeneration of the kidneys. What can we do? The answer is, Very much can be done. Let us take the conditions in their order.

The fistulæ are already cured by the incisions you have seen me make.

The stricture is rendered harmless, though not cured, by the dilatation of my finger in this examination.

The ulcer above the stricture is by no means as extensive as I believed; and could be cured, as it was nine years ago, by local treatment.

This leaves us with an abscess in the left broad ligament occluding the rectum by pressure, and for this I shall at once do colotomy. The abscess is for the present incurable. It cannot be made to heal, it exhausts the patient, it produces degeneration of the kidneys, and it threatens the life of the patient by its mechanical pressure. I will show you to-morrow a pathological specimen exactly analogous to this which caused the death of a patient—exactly as this may do at any time—by the exhaustion of suppuration, and finally by complete obstruction.

Since we cannot now cure the abscess, we will do what we can to render it harmless—that is, we will do a left inguinal colotomy—do away with the chronic intestinal obstruction and the irritation of the fæces to the rectum; try to get the patient into better condition; and, perhaps, subsequently attack the abscess directly through the rectum with some hope of success.

I will ask my associate, Dr. Gibbs, to operate, and while I assist I will call your attention to the points in the operation.

You observe that all the instruments we have thus far used about the rectum are now discarded, and that the most absolute antisepsis is used.

The incision crosses an imaginary line from the left anterior-superior spine to the umbilicus, at one inch and a half from the bony point; and is about two inches long. Step by step we work down on a director to the peritoneum, securing the bleeding points as we advance, and finally stopping all oozing by the steady pressure of a dry towel.

As the peritoneum is opened a coil of gut protrudes, and you see me at once close the opening with two fingers which have been carefully washed, and pass them deep into the pelvis for exploration.

I can feel the abscess wall distinctly. On its upper free peritoneal surface over a space the size of the palm it is much thinned and flaccid from being emptied of its contents. Deeper in the pelvis the walls where they press upon the rectum are dense and thick. Withdrawing my fingers the same coil of gut protrudes, and we see that there is a broad *longitudinal* band of muscular fibre and several *appendices epiploicæ*, showing us that we

unquestionably have, what we must always be certain of at this stage, a portion of the large gut in the wound. Were this not large gut, I should slip it back and bring up another loop from the pelvis.

You perceive that while I am talking we are having constant difficulty. The gut is much distended and thinned, it is the size of my fist; the patient is trying to vomit, and the gut is forced with great violence out of the wound. We cover it with a large flat sponge, both of us press it gently and firmly back into the abdomen, and the ether is pushed till the vomiting ceases.

Now, when all is quiet and the gut reduced, Dr. Gibbs passes a harelip pin first through the skin at one side of the wound, then through parietal peritoneum on the same side, then under the gut through its mesentery, then through parietal peritoneum on the other side, and finally through the skin. By this we have fastened the gut where we want it; we have secured a sharp fold or spur in the gut which will effectually occlude it at this point; and we have so passed the pin that the proximal end of the gut in the wound is much larger than the distal portion beyond the pin. In other words, when the gut is finally opened there will be two orifices. The proximal will be large, the distal small, and they will be separated from each other by a sharp bend in the wall of the gut where it passes over the pin.

The rest of the operation is simple. Eight sutures are introduced each passing through skin, parietal peritoneum, and the muscular wall of the gut. None perforate the calibre of the gut, and whenever possible, they are passed through the heavy longitudinal fibres for additional strength. I wish you to note that I do not draw the gut as far out of the wound as I often do in these cases, because should I deem it best subsequently to attack this abscess *per rectum* and should I succeed in closing it, I may want also to close this artificial anus, and I prefer to leave as much of the wall of the gut intact after my opening as possible.

The sutures being passed we cover the wound, without opening the bowel, first using protective, then wood-wool tissue, then cheese-cloth and bandage. The protective is necessary to prevent the adhesion of the gut to the dressing. After three days the dressings will be removed, the loop of gut will be opened by a longitudinal incision, and the edges will be trimmed with scissors down to the margin of the skin. This will not require ether, and, unless the patient sees what we are doing, she will be unconscious of the operation. The gut is not sensitive to pain.

The operation is completed. The patient will in all probability do well unless the kidneys give trouble. On the third day I will open the bowel and you shall know the result. My only regret is that you will not be able to see the benefits which almost invariably follow this operation in these cases, by having the patient under observation for the next six months. Still, the case is an unusually complicated and interesting one, and teaches many things. You heard my doubts as to the existence of a second stricture above the first, arising from the clinical history, and you saw them verified, the real cause of the obstruction being the abscess and not the old cicatricial contraction near the anus. You saw my error in mistaking an old abscess and pelvic inflammation for a fæcal impaction cleared up under ether. The mistake was a natural one, but none the less instructive.

You have seen us do a colotomy for a combination of diseases each one of which might possibly be handled by itself, but the combination was rapidly exhausting the patient. If she does well, gains strength and flesh, and seems in good condition for the effort a few months from now, I shall, in all probability, divide the stricture, open this abscess freely into the rectum, and try to induce it to close. If we succeed in this and the rectum is not occluded by the pressure of the pelvic exudation, which I fear will be the case, there is nothing to prevent our closing this artificial opening and restoring the fæces to their normal course; though the patient will by that time be so comfortable that she may not elect to undergo another operation.

NOTE.—There was no rise of temperature after the operation. The gut was opened on the third day. The pin was removed on the seventh; and the sutures allowed to work their way out.

ORIGINAL ARTICLES.

ESSENTIAL PAROXYSMAL TACHYCARDIA.[1]

BY JOHN A. ROBISON, A.M., M.D.,
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THE subject of tachycardia, or rapid heart action, has been of interest to me for some years, and I have been surprised to see how meagre is the literature bearing upon this important form of heart disease. An editorial on Essential Tachycardia in the *New York Medical Record*, November 30, 1889, gave a brief *résumé* of an exhaustive article on this subject by M. Bouveret, of Paris. I procured the September and October numbers of the *Revue de Médecine*, and have deemed the article of such importance that I give the following abstract:

Bouveret describes "essential paroxysmal tachycardia" as a peculiar affection of the heart characterized by paroxysms of cardiac palpitation, occurring in adults, in which the pulse increases to 150, 230, or even 300 beats per minute. He divides the paroxysms into two kinds, viz., short and long attacks. The short attacks last from a few minutes to four or five days. In these the principal symptom is rapid beating of the heart. If the attack lasts four or five days signs of passive congestion of the lungs appear, often followed by turgescence of the jugular veins, cyanosis of the face, visceral stases, and œdema of the extremities. The long attacks may last days, weeks, or even months. The symptoms are more grave; acceleration of the heart-beats remains the dominant symptom, but the secondary symptoms are more or less serious; there are disturbances of the respiration and general circulation,

[1] Abstract of paper by M. Bouveret in the Revue de Médecine and report of a case. Read before Chicago Pathological Society, March 10, 1890.

feebleness of the heart's action, dilatation and engorgement of the heart cavities; cough is frequently present, and the expectoration is mucous and viscid, like that in bronchial catarrh or pulmonary congestion. Often the sputum is bloody, and hæmoptysis frequently occurs. Dyspnœa is more or less marked, the respirations frequently being 40 per minute. Pulmonary resonance generally remains normal; sometimes, however, becomes exaggerated. Facial cyanosis and jugular turgescence are pronounced.

The cerebral symptoms are those of arterial anæmia and venous stasis of several days' duration. Restlessness, insomnia, and sometimes delirium are present, and, in some cases, anorexia, nausea, and vomiting. Bouveret noticed one case in which the attack ended in vomiting. Diminution of the urine does not occur in all cases. The skin remains pale and dry during the whole attack. The temperature is normal in the short attacks, but rises from one to three degrees during a long attack. This is probably due to the secondary pulmonary congestion.

Subjective symptoms. The vital forces seem prostrated. The patient experiences a heaviness, extreme weakness, and a general sensation of cold. Pain is seldom present, but there may be a sensation of constriction in the neck, thorax, abdomen, epigastrium, back, or præcordium. After the attack the pulse falls from 200 or 250 to 60 or 70 pulsations per minute. Frequently two or three slow, energetic contractions of the heart mark the transition to the normal pulse-rate. At that moment many patients experience particular sensations: one felt prostrated by an indefinable *malaise*, and it seemed to him that he would die; another patient, a woman, believed that there had been a rupture of some kind in the cervical region.

The secondary symptoms disappear slowly. It takes several days to efface all traces of the pulmonary congestion, venous stases, ascites, or peripheral œdema; but the secretion of urine is usually promptly established. Sometimes a transient polyuria ensues.

Course, Duration, and Termination.—The patient, like the epileptic, always remains liable to another attack. In the intervals his general health is good, and there exists no symptom indicative of trouble of the heart, nerves, or nerve-centres. This integrity of the heart and all the organs is another characteristic of essential paroxysmal tachycardia.

The duration of the malady is long and indeterminable. It may exist from one to fifteen years. The cases that survive long never indicate that they are cured, and they probably are always liable to recurring attacks. After the paroxysms, even those of long duration, there are never signs of organic heart disease. But in one case observed by Bouveret the acute dilatation merged into chronic dilatation. Though the affection seems functional, there is diminished power of the heart, the attacks become more frequent, the secondary symptoms disappear less rapidly, and the prostration of the vital forces persists longer after the cessation of the palpitations.

This form of tachycardia is certainly a grave malady. Bouveret's observations warrant the conclusion that it is almost always fatal. Of eleven patients, only one seemed to be actually cured, several years passing without a new paroxysm. Four patients died either from syncope or systolic paralysis. As many as six survive, but are subject to new attacks.

It is impossible to prognosticate concerning an attack, especially at the beginning. The long attacks are undoubtedly grave. Bristowe, of England, reports a case that terminated favorably after the paroxysm had lasted fifteen weeks, the pulse returning to normal, and the patient resuming his occupation.

Bouveret gives the following as signs of a fatal ending: A tendency to syncope, very extensive pulmonary congestion, great agony in the præcordial region resembling angina pectoris, and renewed acceleration of the heart-beats under the influence of bodily exercise or emotion.

Etiology.—Essential paroxysmal tachycardia has not been observed in infants. The ages of the patients observed varied from nineteen to fifty-two years. Sex, antecedent hereditary, hygienic, or pathological conditions seem to exert no causative effect, but the abuse of coffee and tobacco is apparently of influence.

Treatment.—Anæmia assuredly favors the development and persistence of the attacks, and if present it must be combated with ferruginous preparations and tonics and the proper hygienic and alimentary treatment. Bristowe has given iron to the larger number of his patients, and it seems to have diminished the frequency and intensity of the paroxysms in a number of cases. It is equally important to treat digestive difficulties, such as dyspepsias and diarrhœas, and disabilities of other portions of the organism. During the attacks complete rest must be enjoined. The dorsal decubitus is preferable, and the larger portion of the patients spontaneously seek this position, while others prefer to lie on the right side. Lying on the left side, quick movements, such as rising suddenly to the upright position, or emotional disturbance, aggravate the attacks. The greatest danger during the paroxysm is syncope and heart exhaustion, and during this time the patient should not be examined. Digitalis is certainly the remedy of first importance to reduce the acceleration of the pulsations of the heart. The doses which Bouveret employed were 7½ grains daily of the powdered leaves made into an infusion, four or

five days consecutively, until it moderated the action of the heart. Caffein, nitrite of amyl, and nitro-glycerin have not proven efficacious. Czermak has shown that compression in the cervical region over the course of the carotids, especially on the right side, slows the pulsations of the heart. Quincke has related his experience with this compression in a large number of cases, and has arrived at the conclusion that the lessening of the pulsations of the heart is due to pressure on the pneumogastric nerve. Deep inspirations, and suspending the respirations, are measures which have been used with a certain degree of success. Nothnagel believes that a deep, forced inspiration stretches the pulmonary peripheral twigs of the pneumogastric nerves and transmits an inhibitory influence to the nerve centres. Bristowe records one case in which the inhalation of small quantities of chloroform lessened the gravity of the attacks. Morphine has been given with good results. Venesection has been employed beneficially when there was dilatation of the right cavities of the heart and consequently an elevation of the venous tension and the rapid development of visceral stases. In one case observed by Bouveret the application of a blister over the præcordial region was beneficial. Bouveret believes at present that the only efficacious treatment for an attack of essential paroxysmal tachycardia is compression of the pneumogastric in the cervical region, as practised by Czermak and Quincke; but, as he has applied the treatment only three times, it must be admitted that we cannot as yet estimate the true value of this method.

W. A. R., aged sixty-two years, American born; an active worker, physically and mentally, all his life. For the past twenty years has been foreman of a large manufacturing establishment. His father died suddenly, presumably of heart disease. His mother died at an advanced age, of paralysis. The patient's general health has been excellent, with the exception of trivial attacks of dyspepsia, when he would experience palpitation of the heart in a mild form. He has been extremely moral and temperate, except in the use of tobacco and coffee. Has chewed tobacco *excessively* all his life until three or four years ago, when he almost ceased using it. He was in the habit of drinking from one to three cups of strong coffee with each meal until of late years. About one year and a half ago he was attacked with palpitation of the heart, his pulse rising to almost 150; there was a sensation of impending dissolution, extreme malaise and weakness, and cyanosis of the face and extremities. The physician who attended him said that he could pick up the skin and that it had lost its elasticity and color and resembled the skin of a corpse. The first attack lasted only a few minutes, but the patient was left in an exhausted state from which it took him two days to recover. After this attack he became extremely nervous, apprehensive of sudden death, and melancholic. At intervals of a few weeks he had several attacks, each recurrence lasting longer and leaving the patient more exhausted. But he would not give up his position in the factory until February, 1889. On one day in that month it was necessary that some work should be done on a "champering" machine, and, as the usual operator was absent, Mr. R. went to work at the machine himself, and worked very hard for two hours. Suddenly he was seen to stagger and fall, and when found he was almost in a state of collapse. His heart was beating so rapidly and feebly that its pulsations could not be counted, nor could a radial pulse be felt. He was cyanotic, the skin being cold and clammy. Notwithstanding the severity of the attack, after an hour's rest he arose and went one mile to his physician's office, and had a second attack there. Aromatic spirit of ammonium and whiskey revived him. But it was some days before he was able to be up and around again. He resigned his position, and at my suggestion was placed on cod-liver oil and whiskey. He improved very much during the summer, although he had slighter attacks at lengthening intervals. He noticed one fact, and that is, that a strong cathartic dose of calomel or blue mass cut short the attacks and sometimes prevented them.

The last attack occurred about three weeks ago, while in his office—the patient now being in the real estate business. He wrote as follows: "This morning I had a slight attack of palpitation while writing. It has passed away, but has left me with a sensation of fulness in the head. At the present time of writing my pulse is 130." By remaining away from business half a day all traces of this attack disappeared.

In this case digitalis seems to exert no beneficial influence. I have advised him to try compression over the cervical pneumogastric.

Aromatic spirit of ammonium and whiskey prove to be of the greatest service in shortening the attacks in his case. Nitroglycerin and nitrite of amyl have not been of any service. From the use of pepsin and cod-liver oil with whiskey the patient's weight has increased from 145 to 158 pounds.

Once or twice during the attacks a murmur could be heard with the first sound of the heart near the ensiform appendix. It was supposed to be a systolic tricuspid murmur. Dyspnœa has never been present, although cyanosis is sometimes extreme.

79 STATE STREET.

SALICYLATE OF CINCHONIDINE.

BY R. B. MCCALL, M.D.,
OF GEORGETOWN, OHIO.

ATTENTION has been recently directed to salicylate of cinchonidine, a drug which is probably but little known to the profession at large. From circulars issued by the manufacturing firm of John Wyeth & Co., of Philadelphia, I first learned of the high estimation in which it was held by them, it being considered almost a specific for cases in

which symptoms of both rheumatism and neuralgia are manifested. Like many others, I had long felt the need of a remedy that could be effectively used in such cases where the peculiar signs of the two diseases are blended together, and for that reason the more difficult of management. Salicylic acid, the salicylates combined with quinine and ferric salts and supplemented by anodynes, massage, and electricity have been employed with a measure of confidence and success, and yet there has been a very large percentage of unsatisfactory results.

It is useless to speculate as to whether two distinct pathological states exist in rheumatism and neuralgia. For the purposes of this article it will suffice to recognize the existence of two unrelated morbid conditions modifying and intensifying each other's effects—a condition we may call either rheumatic neuralgia or neuralgic rheumatism.

For symptoms, we may have impairment of the functions of a few or many joints—notably the shoulders, hips, ankles, and less frequently the smaller joints of the hands and feet. Tumefaction may be present in the larger articulations, but very generally is not appreciable; friction, soreness, and stiffness are always present.

To explain how salicylate of cinchonidine is more effective in these states than salicylic acid or the salicylate of sodium with sulphate of quinine would be difficult, and if accomplished would possibly have little practical value. Salicylate of cinchonidine probably owes none of its efficacy to its relationship to quinine, but solely to qualities engendered by the union of cinchonidine with salicylic acid. Given alone, its antiperiodic effect is very inferior to that of quinine, but exactly adequate to the demand in the present instance. The well-known value of salicylic acid in both rheumatism and neuralgia is increased by its intimate association with cinchonidine, and thus the two together, considered on theoretical grounds alone, must be acknowledged to possess those therapeutic qualities that are needed to meet the above described indications.

Before presenting the following cases, the writer may be allowed, in the way of a brief recapitulation, to state that with more or less strongly pronounced signs of rheumatism and neuralgia, such as pain or soreness and stiffness of the loins, with or without impairment of function of the smaller joints, with a history of previous similar attacks, and no permanent organic lesion, most satisfactory and in a great majority of cases, lasting relief will follow the faithful administration of salicylate of cinchonidine. The following are some of the cases treated by me during the year.

Case I.—Mrs. P., aged sixty-nine years, full habit, good appetite. She was nearly helpless, unable to change posture in bed without assistance, or to walk, on account of pain and stiffness of muscles of back. Temperature 99.5°, pulse 85 and intermittent. Strychnine restored the heart to its normal action but had no apparent effect on the condition of muscles. I therefore ordered the salicylate of cinchonidine in doses of two and a half grains four times daily, which after three days was increased to four grains. The patient's condition rapidly improved from the third day. On the twentieth day she was discharged and no relapse has been reported.

Since recovery she has been entirely free from discomfort, has a good appetite and sleeps well. The quantity of the drug taken in a single day never exceeded twenty grains, and averaged about fifteen grains. Not the slightest unpleasant effect could be attributed to its use. Patient gave a history of previous recurring attacks extending over many years from which she had been able to obtain only partial relief.

Case II.—Mrs. K., aged fifty years, plethoric. Her sleep was broken; temperature normal; pulse 80, not intermittent, though slightly irregular. She complained of palpitation and was frequently short of breath. Tenderness and rigidity of sterno-cleido-mastoid, pain in back of neck from occiput downward; muscles of abdomen tender; pain and stiffness of loins not so pronounced as in preceding case. Mrs. K. received the salicylate of cinchonidine in five-grain doses, three times daily, in capsules.

Improvement soon followed, the pain and stiffness disappearing, and the organs resuming their normal activity. Anorexia and insomnia, which had existed, were replaced by a natural appetite and sound sleep. No recurrence.

Case III.—Mrs. E., aged forty-two years, temperature 98.8°, pulse 85, irregular and occasionally intermittent; appetite capricious; sleep broken as a rule. Has had hæmorrhoids for eight years with fissure of anus. As in the other cases, there was a history of frequently recurring backache, sometimes so severe as to render the pursuit of her usual occupation impossible.

Notwithstanding complications, the remedy afforded considerable relief.

Case IV.—A colored woman, poorly sheltered, fed, and clothed. She was attacked with rheumatism and for three weeks was unattended. Temperature 99°, pulse 110, feeble and irregular; no appetite; unable to sleep from pain; urine scanty and high-colored; dull pain or soreness in most of the joints, pain and stiffness of lumbar muscles.

With strychnine, laxatives and diuretics, salicylate of cinchonidine was prescribed, and produced most gratifying results. Swelling subsided, soreness of joints and muscles disappeared, and activity was soon restored.

Case V.—An active, hard-working woman, with normal temperature and pulse. She was unable to sleep from persistent pain and discomfort located in small of back. The pain was relieved by the salicylate of cinchonidine in a very short time. This patient had suffered for years and assured me that she had never received such relief before, and ex-

pressed the desire to have capsules with her so that she could take them if needed.

CASE VI.—Was a woman aged fifty years, who for more than two months had been unable to attend to her household duties on account of pain and stiffness of muscles of back and abdomen. To her the salicylate was given in four-grain doses, three times daily, and rapidly caused complete and permanent relief.

These cases could be supplemented by others, but a sufficient number has been given to show conclusively that salicylate of cinchonidine has a positive therapeutic value in a certain class of diseases characterized by the presence of lumbar pain and immobility.

The leading symptom, therefore, and the one that should guide the physician in the use of the remedy is pain and stiffness located in the lumbar region.

The best forms in which to administer the drugs are tablets or capsules. For convenience the writer has been in the habit of employing capsules. I venture to prophesy that the drug will be found very useful in the treatment of the more simple forms of neuralgia and rheumatism and in the various neurasthenic states so frequently met.

SECONDARY CONSEQUENCES OF SURGICAL SHOCK.[1]

BY J. F. TODD, M.D.,
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THIS paper is submitted for consideration with special reference to the probable cause of the death of one Robert Burns, a native of Ireland, who, at the time of his death, was fifty-one years of age, and had been married twenty-five years. His history sheet at the county hospital is as follows:

Occupation, canvasser. Diagnosis, carbolic acid poisoning and ulcer of leg. Admitted March 27, 1889, discharged April 6, 1889. While on a spree attempted to poison himself by taking carbolic acid. Treatment: March 27th, whites of three eggs, milk and lime-water and sodium bicarbonate *ad libitum*. April 1st, potassium bromide, 15 grains, three times a day.

He was sent to the Detention Hospital on the night of April 9th, from there to the Insane Asylum at Dunning on the 11th, where death occurred on the 26th of the same month. His wife and brother-in-law testified that his general health had been good for twenty-five years, until a short time previous to his commitment to the Detention Hospital, but that he had the habit of occasional bouts of drinking, and that for some months he had shown symptoms of melancholia. They testified that on the 27th of March, and the 6th and 7th of April, they had seen him stripped naked while bathing and changing his clothes, and that there were no marks or discolorations on his body, except the ulcer on the left leg. Two male attendants at the Detention Hospital testified that they saw him naked in preparation for bathing on the night of the 10th of April, and that there were no marks or discolorations on the body, save the ulcer on the leg. Charles Beck, *alias* Hunter, testified to having witnessed a number of brutal attacks upon Burns by several of the attendants in the Insane Asylum at Dunning.

The autopsy was made about forty-eight hours after death. Present: Drs. Egbert, Hektoen, Perkins, and myself. The conditions found were as follows: Weight about 150 pounds, height 5 feet 9½ inches; *rigor mortis* absent, except in lower extremities, where it was slight. Full set of teeth. Hair dark gray and abundant. Post-mortem discolorations well marked on posterior surface. A slightly gaping linear scalp wound in the right parietal region near its centre. The wound was one inch long, and did not extend through scalp. On the outer surface of left arm, seven inches below the shoulder, was a contusion with extravasation of blood in the subcutaneous tissues one and three-quarters by two and one-half inches in area. On the outer surface of right arm just below the shoulder a contusion with extravasation two by two and one-half inches in area; two small contusions just below the right patella. A contusion with extravasation two by two and one-half inches in area, over the eleventh left rib anterior to a line from anterior margin of axilla downward. A contusion eight by twelve inches in area in the left inguinal region with numerous thrombi in the vessels of uninjured surrounding tissues. The tissues were filled with blood and pulpefied down to the fascia lata and abdominal muscles; the surfaces of all of these contusions were purplish-black, except that on the right arm, which had a yellowish-green margin. There was found a complete fracture of the sternum just above the cartilages of the fourth ribs with recent extravasation of blood above and beneath the line of fracture, and complete fracture of the eleventh left rib about three inches from its vertebral articulation. Subcutaneous fat abundant. Transverse colon filled with scybalæ; pleural and pericardial cavities normal; cavities of heart partially filled with liquid blood; valves found competent by water test; pericardium and endocardium and arterial tunics normal. Walls of right heart somewhat fatty, and right ventricle slightly dilated. Lungs normal, except that lower margins were somewhat œdematous; sections of both lungs crepitant under pressure and floated in water. Stomach contained a small amount of dark-colored liquid and in all respects normal; liver normal in size but slightly fatty; gall-bladder full of bile; spleen, pancreas and intestines normal. Kidneys showed a small amount of fat; normal in size. Capsules stripped off readily; cortical surface dark-red, one-quarter

[1] Read before the Chicago Medico-Legal Society, March 1, 1890.

inch in thickness, with normal markings. Dura mater adherent throughout and slightly thickened; otherwise the brain and meninges presented no abnormal appearances.

Based upon the foregoing facts, I gave the opinion to the coroner's jury that the death of Burns resulted from the injuries described, and that it was a consequence of shock and subsequent prostration. In support of the major proposition, Dr. J. K. Egbert, Assistant County Physician, and Dr. Charles F. Perkins, Assistant Demonstrator of Anatomy, in Rush Medical College, testified that in their opinion death resulted from shock produced by the injuries. Dr. Hektoen testified as follows: "In the absence of any other obvious cause it would seem that the contusions and fractures found upon the body would have a great deal to do with the death."

The coroner then asked: "Suppose that Burns was fairly healthy and had sustained the injuries from violent kicks or blows, what would be your opinion?" Dr. Hektoen answered: "I would have to say they might cause death." This *résumé* of facts and opinions has been given in order that the questions under discussion may be better understood. Dr. H. N. Moyer[1] submitted a paper to the Chicago Medico-Legal Society on the 9th of last October, in which he assumed that the facts disclosed failed to justify the opinion that the death of Robert Burns was caused by the injuries. The propositions upon which he based his argument were: 1. Fatal injuries must produce their effect, either by immediate shock or by remote and secondary consequences, such as hæmorrhage, inflammation, abscess, septicæmia, fat embolism, etc. 2. If death cannot be traced to one of these conditions, some other cause must be sought.

In a large proportion of deaths from shock the cause is so obvious that medical evidence is a mere formality to fulfil the demands of law; in such cases intelligent lay evidence would subserve all other requirements. A penetrating wound of the heart, extensive laceration of the lungs or liver, crushing of the bones of the skull or spinal column are properly recognized by the laity as mortal injuries; the character of such injuries is so rapidly fatal that the refinements of medical science and the subtleties of law fail to mystify even the average jury. In this class of cases the evidence is called positive.

In a certain proportion of cases the cause of death is not clearly recognizable. Evidence of serious injury may co-exist with pathological conditions tending to produce death from exhaustion. In this class of cases the evidence is called negative. It is the class that supplies the fees to criminal lawyers and professional experts, too often at the expense of the best interests of society. There are apparently no rules of evidence or degrees of professional skill that mitigate the discrepancies of expert testimony. Controversies as to the cause of death usually begin with the post-mortem examination of the subject, the statement of the facts discovered, and the inferences deduced from the facts. It is obvious that opinions may agree as to the fatal effects of an injury and vary as to the mode of death, and that opinions will vary upon all questions that are incapable of demonstration. It is admitted that the physician who makes a post-mortem examination should appreciate the importance of his duties, for the reason that they relate to the welfare of society. It is not essential, as alleged by Dr. Moyer, that "he should ever hold in mind the rules governing legal evidence," or even possess a knowledge of them; but it is essential that he should render a truthful statement of all the facts discovered and an honest opinion derived therefrom, uninfluenced by the raspings of cross-examination or the opposing influence or criticism of professional experts. He should formulate and express his opinions with due deliberation, estimating the tendencies to death from causes antecedent to alleged fatal injuries.

If the heart cavities are dilated he should seek for valvular incompetences or vascular degenerations, and evidences of organic disease of the lungs, liver, and kidneys; if the dura mater is thickened and adherent, he should conduct the examination with reference to organic disease of the brain, such as undue vascularity or morbid effusion. By this method of examination and exclusion an opinion as to the cause of death can alone develop an intelligent and well-founded belief. In the Burns case the nature of the injuries necessarily implied the application of great violence, granting a normal condition of the bony structure; no other opinion can be entertained. Hamilton[1] states that "fracture of the sternum, in itself, implies the application of great force," and that "the force requisite to fracture a rib is scarcely less." "The most common causes are direct blows of very great force." It may be assumed that such a force acting upon an enfeebled subject, as Burns was known to have been, was quite sufficient to produce shock. Dr. Kiernan certified to the board of health that death resulted from phthisis and the exhaustion of melancholia. He recognized that exhaustion was the chief factor in the case, but was unaware that the patient had sustained the fearful injuries that the autopsy alone could disclose. Granting that exhaustion due to lack of food and sleep and the nervous irritability of insanity existed, if they were supplemented with

[1] Medico-Legal Journal, New York.

[1] Fractures and Dislocations, p. 168.

the effects of a force sufficient to produce a complete fracture of the sternum, and a complete fracture of a rib, and add to that as a source of constitutional irritation numerous contusions, one of which caused the effusion of a pint of blood in the cellular tissues of the abdomen, with a breaking down of subcutaneous tissues to the muscular fascia over an area of eight by twelve inches, we are forced to the conclusion that shock of dangerous severity, if recovered from, must have been followed by profound exhaustion. It is no answer to such inevitable conclusions to say dogmatically that "insane subjects are not susceptible to the influences that produce shock in the sane, and that in many instances the effects are directly contrary."[1] My observations of this case and the weight of evidence relating to his symptoms are to the effect that Burns was morbidly apprehensive and hyperalgesic, conditions which Spitzka[2] mentions as sometimes coexisting. Savory states that "animals exhibit the characteristic phenomena of shock, and the insane surely do." It has developed in states of profound anæsthesia, and it is doubtful if any condition of animal life can preclude its occurrence on the application of certain stimuli. Forbes Winslow[3] says: "Much has been written on the subject of the insensibility of the insane with a view to establishing that it exists in a majority of cases of mental disease. Such an opinion could only have been expressed by writers practically unacquainted with the ordinary phenomena of insanity. The insane as a general rule are not reduced to a condition of anæsthesia. In many cases the sensibility, psychical as well as physical, is acutely and painfully present." Ross[4] says that all conditions which tend to impair the nutrition of the nervous system, as exhausting diseases, cerebral anæmia from whatever cause, dissipation, prolonged pain, and depressing passions, predispose to the production of shock. It is quite as difficult to fix a time-limit to the duration of shock, or a definite morbid anatomy for its secondary consequences, as it is to determine what physical or mental condition constitutes a bar to its occurrence. The fact is, that notwithstanding the advancement in neuro-pathology during recent years the essential nature of nerve force and the etiology and pathology of shock are but little better understood than they were fifty years ago. It is admitted that shock from sudden and violent mental impressions involves substantially the same pathological conditions that exist in shock, from physical injury; chorea, convulsions, hysteria, epilepsy, arrest of the lacteal and menstrual secretions are recognized as occasional secondary results.[1] Trousseau and Marshall Hall have given histories of paralysis, insanity, catalepsy, jaundice, and gout caused by sudden mental impressions.[2] Savory states that sudden fright has been known to produce deafness and that it is not uncommon to have various forms of local disease referred to some shock which the system has sustained. If the reflex effects of mental shock may so profoundly affect innervation that functional disturbance is continued in many cases for a series of months or years, and in exceptional instances during a lifetime, it is, to say the least, illogical to limit the effect of surgical shock to the period of suspension of nerve function that characterizes the condition of collapse, and still more illogical to insist that fatal secondary results must necessarily coincide with definite, recognizable pathological changes. The constitutional conditions, congenital and acquired, that predispose to shock, the widely varying degrees of tolerance to injury and pain, and the diversity of degrees and character of injuries sustained, render it exceedingly difficult to predict with certainty either the duration or final result of no small proportion of such cases. These considerations undoubtedly have deterred surgical authorities from fixing a time-limit to the duration of shock or the period of nervous exhaustion immediately succeeding it. *It is a problem involving an estimate of vital force present, supplemented by possible contributions dependent upon the functioning power of the sympathetic nervous system, every cell of which may suffer functional embarrassment, the degree and exact character of which we are profoundly ignorant.* Erichsen[3] states that "On recovery from the immediate and depressing effects of shock secondary symptoms supervene. These are chiefly such as arise from lesions of the sympathetic system of nerves, and consequent disturbances of its vaso-motor action." Savory says that "A state of collapse may end neither in immediate death nor in direct recovery, the reaction may be imperfect and that condition which Travers has described as 'prostration with excitement' may supervene and this may lead indirectly to an unfavorable or fatal issue. In patients whose nervous systems have been shattered by intemperance or who have been exhausted by excessive mental strain or nervous excitement, the nervous symptoms that accompany the febrile disturbance may form so prominent a feature of the case as almost to justify the description of a third type, as has sometimes been done under the name of irritative fever. Often the fever is from the first of an asthenic type, espe-

[1] Dr. Kiernan: Discussion in Medico-Legal Society of Chicago, October 9, 1889. Medico-Legal Journal, New York.
[2] Manual of Insanity, p. 68.
[3] Brain and Mind, p. 355.
[4] Diseases of the Nervous System, vol. ii. p. 634.

[1] Tuke, Influence of the Mind upon the Body.
[2] Holmes's System of Surgery, vol. i. p. 150.
[3] Science and Art of Surgery, vol. i. p. 150.

cially in drunkards, in whom it resembles delirium tremens, ending in death from exhaustion." Agnew[1] says: "In some instances there exists an exciting struggle between reaction and depression, the system makes a gallant effort to recover from the influence of the violence. The symptoms in some measure abate, the recuperative effort is not sustained, and so the conflict is waged, now the one and then the other yielding, until the struggle closes either by recovery or fatal collapse." In illustration of this variety he gives the history of a fracture of a thigh and pelvis with sphygmographic tracings that terminated fatally on the evening of the fourth day after the receipt of the injury. Ross[2] says: "Reaction may gradually give place to health, but in some cases relapses are not infrequent, and convalescence is then protracted even when recovery takes place." Gay states that operations on neurotic subjects are often followed by great nervous excitement out of all proportion to the severity of treatment, and that convalescence is not only lengthened but the result is doubtful. Van Buren[3] states that "when an habitual drinker of spirits has been seriously injured reaction may gradually merge into the peculiar condition known as delirium tremens." Pilcher[4] says: "In the most favorable cases reaction is gradual and progressive, though it may occupy many hours or even days in its course."

Gross[5] writes that "the duration of the symptoms of shock is subject to no little diversity; at times they pass off in a few minutes or, at furthest, in a few hours; at other times they last for several days, and even then do not pass off completely. When very severe, death may occur instantly, or the case may linger on for some time in a state of doubt and uncertainty, with now and then an attempt at reaction, and at last prove fatal."

The foregoing quotations from standard authorities fully sustain my position that the primary and secondary effects of shock necessarily depend upon the constitutional condition of the subject, and justify the conservatism of the opinion that an exact time-limit to the phenomena of shock is impossible to determine. The question now arises as to the character of the secondary consequences. It will be conceded that the injuries that Burns sustained were adequate to produce shock of such severity as to provoke reactive fever. The large mass of broken-down tissues in the inguinal region, or either of the fractures, would produce traumatic fever in a typically healthy subject. Does traumatic fever necessarily depend upon septic causes, or an inflammatory condition? Erichsen says that simple traumatic fever is best studied in the class of injuries that this case presents, viz., in simple fractures and severe bruises of the soft parts, and that the exact cause of the fever has not yet been clearly settled. Lucas-Championnière is of opinion that we must look for its cause in the nervous system, and certainly in some cases it is difficult to conceive of any other mode of origin. Hamilton[1] says: "Irritation is the only invariable condition immediately precedent to inflammation; it is the direct and sole cause of many surgical accidents in which the interposition of inflammation cannot always be demonstrated, and of some few in which it plainly does not exist, *e. g.*, nervous shock, tetanus, traumatic fever, and traumatic delirium." We see, therefore, how important is the *rôle* played by irritation in its relations to surgical accidents and maladies. According to Erichsen, "In aseptic wounds and subcutaneous injuries we have three causes which may separately or conjointly produce the condition known as traumatic fever. First, a nervous disturbance, concerning the exact nature of which it is useless to speculate. Secondly, the absorption of the early exudation of a fresh wound. Thirdly, the ferment contained in the serum squeezed from a blood-clot during its contraction." It has been shown experimentally by Billroth and others that fresh aseptic serous discharge from a recent wound if injected into the subcutaneous tissues or vessels of an animal causes febrile disturbance. Gross says that "irritative fever bears the same relation to the nervous system that inflammatory fever, properly so termed, bears to the vascular; *i. e.*, that the fever is characterized in the one case by irritability or excess of sensibility, and in the other by plethora or redundancy of vascular action. Van Buren[2] writes that "reaction merging into fever *means that it is incomplete and halting*. It is important not to fall into the popular error that the reaction has passed beyond the limits of health into the region of 'inflammatory excitement,' and that it requires remedies of a lowering character. The excitement is in truth due to depression of the powers of life." Travers,[3] whose opinions are quoted affirmatively by nearly every writer on this subject, says "that the tumult of the system proceeding from the sympathy of the whole with an injured part, is a state in which reparative action is wholly incompatible. Some cases are followed by inflammation, and, incapable of sustaining it, die in collapse. The fever resulting from injury may be bold inflammatory or may be vacillating; but *irritation*, in my opinion of the term, is not fever under any modification. In irri-

[1] Agnew's Surgery, vol. ii. p. 376.
[2] Diseases of the Nervous System, vol. ii. p. 637.
[3] Lectures on the Principles of Surgery, vol. iii. p. 291.
[4] The Treatment of Wounds, p. 21.
[5] System of Surgery, vol. i. p. 409.

[1] Surgery, vol. iii. p. 19, [2] Loc. cit.
[3] Travers's Constitutional Irritation.

tation we have no determinate or continued train of actions; it is everything by turns and nothing long: it may coexist with fever and not coincide with it, it may be a cause of fever or a symptom of it, or either may exist alone, as original conditions." These views coincide with Hunter's, who defined irritable habit as "an increased disposition to act without the power to act." The following quotation from Savory[1] on shock, admirably summarizes the essential and well-recognized physiological facts relating to this phase of our inquiry:

"There is no more important subject for inquiry than the relations of action to power in the living body. In the condition of health the balance is uniformly maintained, or at least the supply is equal to the demand. But if from any cause the power of an organ on the function of which life is immediately dependent be much impaired, this difficulty arises: its function must still be discharged to an extent at least sufficient for the purposes of life, and, therefore, deficiency of power may need to be redeemed by increase of action. But action involves exhaustion, and rest is needed for repair. The greater the effort, therefore, the greater the exhaustion; but, again, decreasing power must be met by increasing action. Thus cause and effect react each on the other. The relation between power and action becomes more and more reversed, until at length, the supply diminishing and the demand augmenting, the crisis with rapidly increasing pace is hurried on."

In this way collapse may indirectly terminate in death through excessive and exhausting reaction. Reaction may be for a long time, perhaps some days, only partial and defective, sufficient indeed to protract life, but rendering the prognosis extremely doubtful. Burns's history, as given by Dr. Kiernan, strongly suggests the effects of increasing exhaustion following shock from the undiscovered injuries. He says that Burns was put to bed on the 20th of April, began to fail rapidly on the 22d, rallied on the 25th, and died about noon on the 26th. The death was neither sudden or unexpected. It was not from sudden heart failure, and the conditions found, as described before the coroner's jury, suggest no theory that will sustain the opinion that death was caused by disease. The adhesion and slight thickening of the dura mater has no greater pathological significance than an adherent pleura. The dilatation and fatty degeneration of the right ventricle was not sufficient to involve either loss or embarassment of functional capacity: there was positive proof that there was no valvular incompetency. The slight fatty degeneration of the liver and kidneys was indicated by a slight change in the color of the tissues, and afforded no evidence of preëxisting disease; it was the condition found in a large proportion of the bodies of intemperate subjects. Paget says: "The whole history of fatty degenerations concur to prove that they are results of defect, not of disease of the nutritive processes, and they may be therefore classed with the atrophy which we recognize in merely diminished quantity of formation."

It has been alleged that the well-known tendency to degenerative changes justifies the opinion that the fractures were produced by muscular contraction. Spitzka, one of the most celebrated authorities on the pathology of insanity, refers these trophic disturbances to the conditions found in paretic dementia and chronic paralysis. The line of fracture in the sternum, in this instance, presents in color and cell structure a perfectly normal appearance, and the effusion of blood in the over- and underlying tissues indicated a recent ante-mortem fracture. All experience proves that fracture is very rarely caused by muscular contraction. Gürlt has been able to collect only 133 out of 13,000 cases, in which fracture was so produced. It has also been alleged that Burns was a syphilitic subject; that opinion is sustained only by the existence of a chronic ulcer of twenty years' standing over the left tibia, and the impressions said to have been derived from the appearance of copper-colored patches on the surface of his body. Reference has already been made to the discrepancy of testimony on this point, and as it involves a question of veracity, it will not be further discussed. Whatever view may be entertained, it is evident that syphilis sustained no causal relation to this death, other than possibly contributing with other causes to produce a condition of constitutional debility. The post-mortem findings closely correspond with the physical conditions existing previous to the infliction of the injuries, malnutrition, fatty degeneration, gradual failure of constitutional vigor.

Dr. Moyer makes allusion to the Hetzke case to illustrate the cause and morbid anatomy characteristic of fatal shock. In this case the injuries were "by no means severe, none of them extending through the subcutaneous tissues." The right cavities of the heart were enormously distended with blood, the body was that of a healthy boy absolutely free from organic disease; the opinion that death resulted from the injuries was based upon purely negative evidence, supported by the condition of heart cavities that indicated shock. In comparison with the injuries sustained by Burns, the boy's injuries were trivial. It is well known that youthful subjects are very susceptible to shock, and that they possess great power of resistance; the tendencies are reversed with advancing age, and the dangers are, as is well known, greatly augmented by whatever influence that tends to diminish vital power. Burns's case presents a variety of influences tending to develop susceptibility to shock, and

[1] Loc. cit., vol. i. p. 155.

all tending to reduce the power to withstand it. Chronic alcoholism, loss of sleep, morbid apprehension of violence, and melancholia combined to produce the degenerative changes described, and a condition of general debility. Chossab, who has made a special study of the progressive structural changes in starvation, says that animals placed on short rations are apt to die from trifling injuries. That has been the experience of surgeons under all circumstances, and it is upon such considerations that surgeons base their prognosis in surgical cases. The question arises as to the propriety of couching opinions in positive terms upon negative evidence as to the causes of death. All injuries of a severe character, not necessarily considered mortal, may prove fatal by reason of the existence of certain morbid tendencies, or constitutional peculiarities, which may be obvious or concealed, and may vary as widely in nature and degree as human character varies. Shall we qualify our opinions as to the cause of death in a case of alleged criminal assault, in which severe and numerous injuries are found to have been sustained, and no evidence found of other adequate causes? Or shall we, admonished by the fact that medical science is only a science of probabilities, permit our conservatism to develop doubts that grant immunity to crime? The answer and the responsibility are alike obvious.

No. 2447 PRAIRIE AVE., CHICAGO, ILL.

ON THE DANGERS ARISING FROM SYPHILIS IN THE PRACTICE OF DENTISTRY.

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HAPPILY the recorded instances of the communication of syphilis in connection with the practice of dentistry are relatively few in number, when compared with the very numerous cases on record where the disease has been acquired through other innocent channels; for, it must be remarked, the number and variety of modes by which this disease has been innocently spread from one person to another, entirely without sexual transgression, is many times greater than would be supposed or imagined by one who has not investigated or given some attention to the matter.

The subject of the innocent transmission of syphilis is a very large one, and one to which the public health officials might well direct their attention; but at the present time we can consider only a very small and limited subdivision of it, namely, as the disease may in any way bring danger through or to any one in the practice of a single branch or specialty in surgery, namely, in dentistry.

Although, as before stated, the reported instances where syphilis has been communicated in connection with or during the operations of dentistry are relatively few, nevertheless there are a sufficient number of cases on record not only to show clearly that this unfortunate accident has repeatedly occurred and may readily occur, but also to direct our attention to the methods or channels through which this may take place, and so to point out the means by which the danger may be escaped or avoided.

It would be quite out of place here to attempt a full consideration of syphilis as a disease, or even to give a description of its various manifestations and effects, which are more varied and manifold than those of any other known malady. But before entering upon our subject proper it may be well to recapitulate briefly the points which are well established in regard to the nature and pathology of syphilis, in order that the real dangers arising from the disease may be better understood.

Syphilis is no longer to be looked upon with the utter abhorrence with which it has been regarded in times past, when it was believed to be always the result of sexual transgression; it is not, indeed, to be always considered as a venereal disease, for advancing knowledge has revealed and science has recorded thousands of cases where it has been acquired in ways of which the unfortunate victim was as innocent as is one who catches smallpox, scarlatina, or measles; but, of course, the fact still remains that in the enormous majority of instances syphilis is acquired in sexual intercourse, because here is offered the greatest opportunity for abrasions to occur, through which the poison may gain entrance. But, on the other hand, hundreds or even thousands of physicians and midwives have contracted syphilis in the practice of their calling; in numbers of instances it has been conveyed by vaccination, tattooing, cupping, and breast-drawing, and, in fine, there is no end to the curious and previously unexpected methods by means of which this disease has been innocently communicated from one person to another.

This innocent transmission of syphilis has also occasionally happened in the practice of various departments of medicine and surgery. Not only have midwives acquired the disease in the practice of their calling, but several small epidemics are on record where a number of women, and from them their children and others, have acquired syphilis from a chancre on the finger of the woman who had delivered them; the disease has also been communicated in various surgical operations, and a striking illustration is found in the history of Eustachian catheterization, where as many as sixty cases were traced to the practice of one person. Instances will be given later where it has occurred in some of the operations of dentistry.

Syphilis is a well-defined disease, always depending upon the entrance of a definite, specific poison, which has never been perfectly isolated, and of whose exact nature we know nothing. It is most probably due to a microörganism, but although this has been thought to be discovered on several occasions, it has never been satisfactorily demonstrated, nor have inoculations been made with success by any pure culture of the same. It suffices for our purpose, however, to recognize that there is a poison capable of entering the system and thereby causing syphilis, reproducing itself there, and again under proper conditions communicating the disease to all who are properly and sufficiently exposed to its influence.

The poison always enters the system at some definite point, and at this place generally in from two to four weeks, a local sore, termed a chancre, which is the first sign of the syphilitic invasion, develops. This sore presents quite different appearances under different circumstances and in various localities. These appearances may be learned from many recent text-books and journal articles. The only exception to this mode of entrance of the disease is found in the case of hereditary syphilis, where the poison enters with the life, and possibly in some other rare conditions, which need not be entered upon here.

For the entrance of the syphilitic virus a broken epithelial or epidermal surface is necessary, although apparent exceptions to this rule have been occasionally met. But in some way the poison must come in contact with the absorbing elements of the body, either bloodvessels or lymphatics, and by them be taken into the circulation, where it multiplies and produces its lesions in various parts of the body; and when once the virus has gained entrance the individual is syphilitic, and unless the disease is checked by treatment, it will go on producing its manifestations, even for many years.

The period during which syphilis is actively inoculable has never been definitely determined, and will probably never be accurately known. It is certainly very contagious during the first year, and also for many months thereafter, and cases are on record where infection has occurred from cases many years advanced in syphilis; indeed, the period where danger ceases has never been determined. Although it is questionable if syphilis is often communicated by patients five years after their infection, no prudent man would take even a shadow of a chance of personal inoculation at this or even at a very much later period. Treatment, of course, greatly modifies the infective power of the disease, and the contagious character of syphilis, even in the earlier stages of the disease, is greatly lessened, if not entirely destroyed in some cases. But all these "ifs" and qualifying statements only show what a dangerous and treacherous affection we have to deal with, and how difficult it is always to be certain of immunity from danger.

The poison of syphilis may be received from three different sources: 1st. From the initial sore or chancre; 2d. From mucous patches; 3d. From syphilitic ulceration; and 4th. From the blood; these we will briefly consider in the above order.

The chancre, or initial sore of syphilis, is occasionally formed upon the lips, tongue, and other portions of the buccal cavity, but generally the lesion is so marked and painful that the patient avoids the dentist and there is relatively little danger of infection from this source. But infection does sometimes occur, as in an instance which fell under my own observation, about to be described, where the gentleman, supposing that the chancre was only a local sore due to sharp and rough teeth, went to his own dentist, and had them filed off, when the ulcer was very painful, and giving off an abundant virulently contagious secretion; so that his dentist must certainly have been exposed to the same. It is well, therefore, in the case of doubtful sores about the lips, tongue, or mouth, either to be assured of their harmless nature or to exercise such precautions as will insure perfect protection to self and others, which will be considered later.

The second source of the contagion, namely mucous patches, is far more fruitful of infection, and that against which special care must be exercised. It is to be remembered that at one time or another these lesions appear to a greater or less amount on the buccal mucous membrane of almost every case of syphilis, so that at some time almost every case is capable of communicating the disease from this source. Mucous patches are slightly raw surfaces of various sizes and shapes, which are at first slightly elevated, and then may become depressed by the loss of the epithelial covering. When newly developed they are of a redder color than the normal mucous membrane, but later may become grayish-white. They are always superficial and often do not cause much annoyance, so that the patient may readily attend to all the duties of life, and may go through considerable dental manipulation while having an abundant crop of mucous patches on the tongue, lips, or buccal cavity. The secretion from them is sticky, and intensely contagious. It is from these lesions that fresh chancres are most commonly contracted, and it is this secretion which adhering to instruments and articles such as cups, spoons, pipes, etc., gives rise to syphilis in most unexpected manners.

Certain deeper ulcerations of syphilis may sometimes give rise to contagion, especially when they occur in the earlier stages of the disease; but prac-

tically very few instances of contagion from this source are known, although this danger also should always be guarded against.

The fourth source of syphilitic infection, namely, the blood, is the least likely to present dangers in connection with dentistry; it is, however, quite possible for blood which is drawn during an operation, or by accident, to communicate syphilis, if by chance it finds an opportunity to enter another individual. It is just this uncertainty in regard to the possibilities of infection which gives to our subject such great practical interest; in few, if any, of the dozens of methods by which the disease has been innocently transmitted from one person to the other was the possibility of such an accident known or even suspected beforehand.

We will now consider some of the observed facts in regard to the communication of syphilis in dentistry, and afterward examine the modes of transmission and the means of prevention. Our clinical study will naturally divide itself into two lines of thought: 1st. In regard to the dangers from syphilis to *patients* undergoing dental operations; and 2d. In regard to dangers to the *operator*.

Inasmuch as it presents many points of interest, relating both to the patient and operator, I may be allowed first to relate the case alluded to which came under my own observation and treatment, and which first called my attention particularly to the subject.

Mr. X. W., a gentleman of intelligence and position, aged sixty years, came to me September 11, 1884, on account of a sore on the tongue which he feared was a cancer. The history was, that some ten weeks before his first visit, he had first noticed a little point of soreness, which had gradually increased in size, in spite of treatment, until latterly it had given him considerable annoyance, so that he was conscious of its presence at all times. The true nature of the sore had evidently not been recognized.

On examination there was found on the right side of the tongue, about an inch from its tip, a hard, inflamed mass, nearly half an inch in diameter, the centre ulcerating and the edges somewhat everted. It was not painful except when irritating food or drink touched it. The two upper molars were found to have sharp and rough edges, and he had been wearing a red rubber plate until recently. There was a small, enlarged, and painful gland beneath the jaw on that side.

Thinking that the ulcer might possibly be due to irritating local causes, he was given a soothing mouthwash, and an alkali internally. Five days later there was a marked improvement in the condition of the ulcer; it had a less angry look, but its edge was more clearly defined as the inflammatory element had somewhat subsided. He had been of his own accord to his regular dentist, and had had the roughened teeth made smooth, and had left out his set of artificial teeth.

From a careful second study of the case I then felt convinced that the sore was a chancre, a primary lesion of syphilis, and he was immediately put on antisyphilitic treatment; the general eruption and other symptoms which followed a few weeks later rendered the diagnosis certain, together with the remarkable manner in which the sore healed and symptoms vanished under proper treatment for syphilis.

In searching for the mode by which the syphilitic poison had gained entrance, it was learned that, during the month or so previous to the appearance of the sore upon the tongue, he had, through the persuasion of a friend, been under the care of a dentist of the cheap, advertising order, who, he had noticed, was not at all cleanly either in his person or with his instruments. He could not locate the exact date of the injury to the tongue by the dentist's instruments, but work had been done in that locality, and he remembered the instrument occasionally slipping, as will often happen, and inflicting injury to the soft parts. He was a married man with a family, and was very desirous of learning how he had become infected; he had certainly not been exposed in sexual intercourse, nor in any other manner which we could discover.

The interesting points in the case are: first, that while the proof is not absolute that he was infected in the dentist's chair, still the circumstantial evidence is so strong that little, if any, doubt can be entertained that the poison came through this channel.

The habits and methods of the particular dentist were such that poisonous material from the mouth of a previous syphilitic patient could readily have been transferred on instruments or otherwise to the wound made in the tongue, either by the sharp teeth or by a slip of an instrument. The second interesting point is that this patient, before the true nature of the disease was ascertained, had been to his own regular dentist for smoothing the teeth, and so had certainly exposed him, and others through him, to the poison which was secreted freely from the raw surface of the chancre.

The earliest recorded cases of the transmission of syphilis in dental operations are in connection with the transplantation of teeth, during the last quarter of the eighteenth century.

Sir William Watson[1] published a case of this description, and John Hunter[2] relates two similar cases, about which there can be no doubt. J. C. Lettsom[3] also recorded three cases: of these, one was personal, one was seen by a Dr. Hamilton, and the third occurred in America, having been observed by Kuhn in Philadelphia; these gentlemen furnished

[1] Watson: Transactions College of Surgeons, 1785, iii. p. 328.

[2] Hunter: Treatise on the Venereal Disease, 1st English edition, 1786; 1st American edition, Philadelphia, 1818, p. 362.

[3] Lettsom: Transactions London Medical Society, vol. i., 1787, p. 137.

notes of the cases to Dr. Lettsom. This mode of transmission does not occur again in literature, to the knowledge of the writer, although Gibier[1] says that "cases have been recently related." In view, however, of a recent revival of the operation of tooth transplantation, it is quite possible that the future may furnish fresh instances of this mode of the innocent acquiring of syphilis.

From this period no other cases of the transmission of syphilis through dental procedures are found recorded for nearly a century; indeed, not until the advent of modern operative dentistry and active medical observation.

The first case met with is one reported by Dr. C. W. Dulles,[2] of Philadelphia, and which was also seen by the late Dr. Maury. The patient, a female domestic, of excellent character, developed a chancre of the lip two weeks after a visit to a dentist, who on that occasion extracted a tooth, and later did some cleansing of the teeth. Although no confirmation was obtained, it seemed reasonable to suppose that the operation of extraction was in some way responsible for the inoculation.

Dr. F. N. Otis[3] also mentions a chancre of the lip which occurred in a gentleman, "about three weeks after a morning spent in a dentist's chair." Lancereaux[4] relates a similar case of chancre of the lower lip in a woman, after extraction of a tooth and other dental work; and Giovanni,[5] of Bologna, has reported a chancre of the lip, apparently from a dentist's instrument. Leloir[6] mentions having seen a man with chancre of the gum, in whom the infection seemed to have taken place in consequence of cleaning and filling a cavity in a tooth with soiled instruments. Lydston[7] has likewise reported the case of a woman with syphilis, in whom the chancre on the gum, below the lower middle incision, appeared to be the result of cleaning and repairing of the teeth, done three weeks previously. The glands beneath the jaw began enlarging a week or more after the appearance of the sore on the gum.

Roddick,[8] of Montreal, has recorded a case of more than usual interest, where the primary syphilitic sore on the gum was undoubtedly the result of inoculation by means of dental forceps used in extracting a tooth. This case is worth mentioning somewhat in detail. The patient, aged about thirty, was the wife of a physician, and the mother of healthy children. She had been in excellent health until about a year previous to her visit, when she had a tooth extracted, the operation being difficult and accompanied by considerable laceration of the gum. The wound showed no tendency to heal, but became sloughy and indurated. Within a few weeks the glands beneath the jaw were found enlarged, and shortly after, an erythematous rash covered the body and extremities, followed later by a papular and squamous eruption. Sore throat and alopecia were soon added, to complete the picture of constitutional syphilis. Careful investigation failed to reveal any other source of contagion than the dental operation; the husband was entirely free from disease, and Dr. Roddick, who is an exceptionally careful man and thoroughly qualified to judge, concluded that "in all probability the instrument used by the dentist was made the vehicle of contagion by being brought in contact with a mucous patch in the mouth of a syphilitic person previously operated upon."

In the second division of this portion of the subject, namely, the dangers from syphilis to the *operator* in dental procedures, the number of instances on record is fewer, but they are very striking and well authenticated.

The first instance discovered was that of a dentist, who reported his own case.[1] The inoculation took place on the middle finger of the left hand, above the nail, and was followed by constitutional syphilis. He could not trace the infection to any particular patient, but there could be no doubt that the poison came from mucous patches in some one's mouth, and lodged in one of the little cracks which are so common about the root of the nail. Bumstead,[2] when speaking of the digital inoculation of accoucheurs, says that he has "known dentists to suffer in the same manner." Neumann[3] knew of a dentist who tore his hand on a sharp tooth while operating on a syphilitic patient, which injury was followed by severe syphilis. Jonathan Hutchinson,[4] in his excellent little clinical work on syphilis, gives an illustration of a well-marked, circular, indurated chancre on the pulp of the finger of a dentist, which had been produced by a scratch on a patient's tooth.

Although the number of these recorded instances of syphilis communicated in dentistry which I have been able to find, after a very careful study of the subject during several years past, is relatively small, it is yet quite sufficient to establish the fact that such infection does occasionally take place, and to place us on our guard against such accidents in the future. Undoubtedly but few of the cases occurring have ever found their way into print, and it is possible

[1] Gibier: Ann. de Dermat. et de Syph., 1882, p. 129.
[2] Medical and Surgical Reporter, January, 1878.
[3] Lectures on Syphilis, New York, 1881, p. 102.
[4] Proceedings Academie de Médecine de Paris, L'Union Médical, 1889, xlviii. p. 655.
[5] Lo Sperimentale, 1889, p. 262.
[6] Leloir: Leçons sur la Syphilis, 1886, p. 62.
[7] Journal of the American Medical Association, 1886, p. 654.
[8] Montreal Medical Journal, August, 1888, p. 93.

[1] Boston Medical and Surgical Journal, vol. lviii. p. 38.
[2] Venereal Diseases, edition of 1879, p. 432.
[3] Neumann: Allgemeine Wiener medizinische Zeitung, 1884, p. 61.
[4] Syphilis, London, 1887, Plate II., Fig. 2, p. 96.

that when special attention has been called to the subject many more will be recognized and reported.

Having now considered the clinical basis on which rest the grounds for believing that there are dangers arising from syphilis in the practice of dentistry, we will examine the modes in which this accident can arise, and then consider the means for preventing the occurrence of this sad event. Two methods of the non-venereal transmission of syphilitic virus are recognized, namely: First, the direct, and second, the indirect. In the first instance the poison is transferred directly from one individual to another, either in already existing wounds or in those occasioned at the time. The number of recorded cases of the communication of syphilis by kissing is now very great; hundreds can be found in literature, and I myself have seen over thirty cases of chancre of the lips. Infants at the breast of syphilitic nurses frequently acquire the disease, and breast-drawing by adults has given rise to numberless cases. In several series of instances syphilis has been both acquired and given by the application of the tongue to the eye to remove foreign particles and to heal disease; the disease has also been acquired and given in the process of wound-sucking, and other more rare modes of transmission which have been reported could be enumerated did time permit.

The particular method which is, perhaps, of most interest to us in the present connection is that of tooth-wounds. The number of cases of this class which are on record is very great; nearly all of them are from bites, usually intentional, and details of these need not be presented here. There are also a number where the infection has taken place from a blow on the mouth, the knuckles being wounded by the teeth. The first of these tooth-wound cases was observed about the beginning of the present century, by Boyer,[1] but not reported until 1840, by his son. Since that time a number of observers have recorded cases, some of whom have each seen several. Thus, Gamberini[2] saw three cases; C. Pellizzare,[3] three cases; Van Harlingen,[4] five cases; Lavergne and Perin,[5] five cases; Lesage,[6] three cases; Finger,[7] four cases, and Jonathan Hutchinson,[8] three or four cases.

In connection with this may also be mentioned the fact that surgeons have repeatedly been inoculated in wounds acquired during operations on syphilitics, as also in other wounds when examining those with the disease. When we consider the relatively large number of physicians and surgeons who have become thus accidentally inoculated in the discharge of professional duties (and I myself have seen at least seven or eight cases), the only wonder is that the accident does not occur oftener to dentists, whose fingers are continually bathed in the buccal secretions, often from mouths with active and intensely contagious syphilitic lesions.

Syphilis is rarely communicated to the patient in dental operations by the direct or immediate method of contact, although the cases of the communication of syphilis by tooth transplantation, already referred to, were probably by the direct method, the poison being undoubtedly carried directly in the transplanted tooth from a syphilitic to a healthy person.

It would also be possible for a dentist with an unrecognized chancre on the finger, in an early stage, to communicate the poison directly to a patient's mouth, as in the case of midwives, already mentioned; but no such case has been found in literature.

The second, indirect or mediate, method of contagion is that which usually takes place in cases where the disease is transmitted during the operations of dentistry, and, indeed, in a large number of the cases of syphilis innocently acquired.

Time and space would fail to tell of even a few of the methods of mediate contagion of syphilis which are scattered throughout literature, but a brief statement of some of the principal modes by which it has been observed to be conveyed innocently from one person to another, may aid us in understanding how the accident can occur in connection with dental operations.

As is well known, various household utensils, such as cups and drinking vessels, spoons, tobacco pipes, etc., have been the means of spreading the disease to hundreds of cases. The glass-blower's pipe has also caused a number of small epidemics, and cases have been traced to the assayer's blowpipe, to whistles, musical instruments, toys, pencils, pins, tacks, nails, thread, paper money, coin held in the mouth, etc. Of instruments used about the mouth, laryngoscopes and tongue-depressors are peculiarly liable to transmit the disease, but the only instance found is a case reported by Jumon,[1] in which a paper-cutter used to depress the tongue gave rise to syphilis. The cases traced to the use of the Eustachian catheter have been already mentioned.

Syphilis has also been conveyed by means of various fabrics, and a number of striking cases are on record where towels and napkins have transmitted the disease. An interesting case is given by Leloir,[2]

[1] Gazette Médical de Paris: Behren's Syphilidal, 1841, iii. p. 322.
[2] Gamberini: Giov. Ital. d. Mal. Ven., 1878, p. 365.
[3] Pellizzari: Giov. Ital. d. Mal. Ven., 1882.
[4] Van Harlingen: Philadelphia Medical Times, 1884–5, xv. p. 80.
[5] Annales de Dermatologie et de Syphilographie, 1884, 2d series, v. p. 332.
[6] Chancre par Morsure, Thèse de Paris, 1885.
[7] Die Ven. Krankheiten, 1886, p. 14.
[8] Syphilis, London, 1887.

[1] Thèse de Paris, Syph. Ignoiee, 1880.
[2] Leçons sur la Syph., Paris, 1886.

where syphilis was communicated by means of a handkerchief.

Of peculiar interest are the cases, of which there are a number on record, where the venereal disease has been transmitted by means of a tooth-brush. This was first observed by Blumenbach,[1] where a lady received a chancre of the tonsil, apparently by means of tooth-powder, her syphilitic nephew dipping his brush into her box when cleaning his teeth.

It is understood, of course, in all these instances that the various objects served as media to convey the dried syphilitic secretion which adhered to them directly to the tissues of the individual who became infected, and it is readily seen how, unless precautions are exercised, the various implements and articles used in dentistry may likewise very easily become the bearers of syphilitic virus.

It is not always possible to determine exactly upon which instrument or in what manner the poison is conveyed, but the preceding instances show that the infection did take place in some way in connection with and in consequence of dental operations. The agents which may become the conveyers of the poison are as numerous as the implements and articles which may come in contact with the mouth in dental manipulations. For convenience, these may be grouped in four classes, as follow: First. Instruments proper. Second. Napkins. Third. Rubber dams, wedges, dental floss, etc. Fourth. Plaster, rubber, etc., used in the making of artificial teeth and sets.

Among instruments, the only one plainly shown to have communicated the disease is the forceps, in the case related by Dr. Roddick, in which the site of the extracted tooth, where the gum was torn by the forceps, became a syphilitic ulcer, the seat of the chancre or primary sore of syphilis. But it is readily seen that the instruments used in excavating and plugging may also become infected, while there is peculiar danger in such instruments as files, burrs, and drills, where there are many places difficult of cleansing which may receive and retain the virus. Napkins and towels may convey the poison, as has been shown; while rubber dams, if used a second time, would very easily convey infection from their prolonged contact with the soft parts. The same is true of wedges, portions of one being often used for different patients, as also thread, ribbon, or dental floss passed between the teeth. The different workmen in a furrier's shop were once infected[2] from a thread passed between them and bitten off. My scanty knowledge of the process of taking casts and preparing and fitting artificial teeth does not permit me to speak in regard to any dangers from this, but I should judge that possibly some danger might arise, perhaps, quite as unexpectedly as it has in other branches of dental practice.

We come, finally, to the most practical and important part of our subject, namely, the prophylaxis, or prevention of the occurrence of this most unfortunate accident, the transmission of syphilis in the practice of dentistry. It may be somewhat out of place in the presence of a society composed of the best elements of the dental profession in New York to urge the simple matters of precaution about to be mentioned; but, as some may not heretofore have recognized the immense importance of the matter, it is best to err on the safe side, and to present briefly and clearly the precautions which seem to be indicated from what we know of the nature and virulence of the poison of syphilis.

As before mentioned, the virus or contagious element comes in liquid form from a chancre or a moist, exuding surface, or, more rarely, with the blood itself from a fresh wound. The secretion is very sticky and adherent, and when dried on an article forms a delicate coat which can hardly be perceived. Nothing is known in regard to the viability of the virus, or the length of time during which it may retain its actively contagious character, but from many instances in the various conditions of life and in medical experience, it would seem that under proper circumstances it retained its vitality and activity for some considerable period—longer than that possessed by the somewhat similar virus of vaccine. Days, weeks, or, perhaps, months, after an instrument or article has become infected it may again give off the poison and produce inoculation. Simple washing will not destroy the poison, although it may so dilute it that it becomes innocuous.

There are, however, several elements which are destructive to its life, and these are heat and cold, and the so-called disinfectants, antiseptics, or germicides. Cold can hardly be utilized practically, as a sufficiently low temperature for a sufficient length of time would be difficult to maintain. Heat, however, may readily be employed in a thoroughly efficient manner, and is undoubtedly the very best means for destroying contagious principles. Inasmuch as dry heat, as in a flame, would injure the temper of instruments, the desired results are best reached by means of moist heat, obtained in boiling water.

Instruments and other articles placed in a vessel and then subjected to vigorous boiling for half an hour or so may be considered absolutely free from any power of conveying contagious matter.

Various chemical substances are also capable of destroying the virus when efficiently used; prominent among these stand bichloride of mercury and carbolic acid. The mercurial salt has its disad-

[1] Bibliothek fur Aerzter, iii. p. 197.
[2] Archiv. f. Derm. et Syph., viii. 660.

vantages, both from its poisonous nature when in strong solution, and also from its corroding action on some metals. Carbolic acid, therefore, remains as the best of the two, and, indeed, when properly used, answers all the requirements of the case. But one must not be deceived by the odor, and be led to use a weak solution, for it is questionable how serviceable the high dilutions used in antiseptic surgery are in overcoming such a poison as syphilis. The strong acid certainly destroys it, and a safe method is to dip the instruments in a ninety-five per cent. solution, wiping or scrubbing them afterward. A much weaker strength, even a ten per cent. solution, would probably be effective if they were left in it a considerable time, and then thoroughly washed. I will not take the time to discuss other disinfectants, but I wish to impress the fact that, not only for ordinary cleanliness, but also and particularly to avoid the possible danger of infection, too great care can hardly be used in rendering instruments and everything pertaining to dental practice as absolutely clean as thought and labor can possibly make them.

Files and burrs are particularly liable to catch and hold the poison of syphilis in their fine serrations, and as they are also peculiarly liable to wound the soft parts, they may readily become means of contagion. Also, the various articles connected with polishing the teeth are dangerous if not properly cared for. I well remember more than one dentist, in times past, polishing my own teeth with a bit of wood dipped in pulverized pumice-stone, which wood had evidently been used for former patients. Rubber dams and wedges can of course be readily disinfected in strong carbolic solutions, and napkins by boiling.

In regard to the personal prophylaxis of the dentist against acquiring syphilis in dentistry little need be said. The careful guarding of fresh wounds, and thorough cleansing of the hands, and immediate sucking of any wound made during operations, will generally suffice to prevent the untoward event. "Forewarned, forearmed," applies well in regard to all the dangers from syphilis in dentistry; if the danger is thoroughly well known and appreciated half the battle is over.

The question here arises, how far the dentist should be able to recognize syphilis and avoid its dangers. Undoubtedly, it would be most desirable that this knowledge should be obtained; but unfortunately a practical acquaintance with syphilis is somewhat difficult, except after considerable clinical experience with the disease. But it is certainly extremely desirable that the mouth lesions should be known by dentists so as to be recognized, and this would be a fitting subject for the consideration of instructors in dental colleges.

In concluding our discussion of this topic, I would add that I by no means wish to excite unnecessary alarm, but only to present facts already well known and conclusions which must be accepted by all those acquainted with the subject. With the presence of such a disease among us, which often appears even in the best class of society, it is well to recognize and understand the dangers which may arise therefrom, and to do our utmost to avert them; this I trust will be the result of the presentation of the subject which has been considered.

MEDICAL PROGRESS.

Inhalation of Vaporized Calomel in Croup.—Rothe reports the case of a child (*Der Kinder-Arzt*, March, 1890) suffering from true croup, in which the symptoms were so severe that the necessity for tracheotomy was imminent. Before resorting to the operation, however, he decided to try the efficacy of inhalations of vaporized calomel, as described by Corbin. A tent over the bed was improvised by means of half-hoops and a blanket, and at the feet of the child a dish and spirit-lamp were placed, and in the dish 30 grains of calomel. The calomel was quickly vaporized, and in about eight minutes the noisy respiration of the patient became quieter and less labored. In ten minutes a profuse perspiration was induced and the child was quiet and comfortable, and without dyspnœa. On the next day the symptoms again increased, and the same treatment was resorted to with equal success. On the fourth day the child was convalescent.

In the second case, a child of seven years, the treatment was also successful. In both cases after the inhalations expectoration became free and less tenacious than previously, but in neither was the membrane discharged.

Early Symptoms of General Paralysis of the Insane.—In a paper read before the Harveian Society (*British Medical Journal*, April 5, 1890), Dr. George H. Savage described premonitory symptoms of general paralysis which are not usually noted in the text-books. Of particular interest are the following:

1. Fatigue after slight exertion is often the earliest symptom noticed by the patient, and is a valuable sign if noticed in connection with other suspicious symptoms.

2. Temporary aphasia is by no means uncommon as an early sign, but it must be understood that transient attacks of aphasia without apparent cause are not always followed by general paralysis. Closely related to this sign is a change in the handwriting; some patients alter their mode of holding the pen or cease writing altogether a year or more before the disease is distinct.

3. Sudden and slight attacks of loss of power or sensation, causing a man to drop whatever he may have in his hand are frequent.

4. Neuralgia, headache, and rheumatic pains almost invariably occur a year or more before the disease declares itself.

5. Changes of temper and character are probably the

most constant of all the changes which are noticed early in the disease.

The paper concludes with the advice that in a patient with a history of syphilis or of injury to the brain, do not neglect early fatigue, fainting or other fits, loss of smell, vague optic disk changes, unusual headaches, neuralgia and sciatica, and change of character.

General Treatment of Bright's Disease.—In the treatment of Bright's disease SENATOR advises the patient to seek a dry and equable climate, and to live almost exclusively upon a milk diet. Small amounts of white meats may be taken, but no red meats. Such vegetable food as herbs, cereals, and fruits are permissible, but it is important to avoid spices. Wines diluted one-half with water may occasionally be taken.

BAMBERGER insists on an exclusive milk diet, and uses the following ferruginous pills:

℞.—Chloride of iron . . . 3 grains.
Extract of taraxacum, sufficient quantity.—M.

One such pill to be taken three times daily.

Or,

℞.—Sulphate of iron
Bicarbonate of sodium } of each 75 grains.—M.
Extract of taraxacum

Make into sixty pills, of which three should be taken in the morning and three at night.

SEMMOLA also insists on a diet of milk, and gives the following mixture:

℞.—Iodide of potassium . . 15 grains.
Phosphate of sodium . . 30 "
Chloride of sodium . . 1 drachm.
Water . . . . 3 ounces.—M.

To be taken in twenty-four hours.—*L'Abeille Médicale*, March 31, 1890.

Sodium Salicylate for Biliary Colic.—PROFESSOR STILLER, of Buda-Pesth (*Wiener medizinische Blätter*), calls attention to the remarkable cholagogue effects of sodium salicylate and suggests that on this property its efficiency in rheumatism may depend. For five years Stiller has used the drug to assist in the expulsion of gall-stones and with most excellent results, not only in securing the primary object of treatment, but in quickly relieving the accompanying pain. He believes that the salicylate increases the quantity and decreases the consistence of the bile, the slowly increasing pressure dilating the ducts.—*Provincial Medical Journal*, April 1, 1890.

Dangers of Catheterization in Retention of Urine.—DR. ASSMUTH (*St. Petersburger medicinische Wochenschrift*) calls attention to the dangers of catheterization in certain forms of retention. The dictum that in old persons with overfilled bladders catheterization should not be resorted to, as a rule, is laid down, and still more imperatively should this be insisted upon where the tension upon the bladder has occurred gradually, perhaps occupying years in reaching this condition. The author's experience, as shown by cases occurring in his own practice, convinces him of the disadvantages of the use of the catheter under these circumstances. Suddenly produced changes of intra-vesical pressure bring about a disastrous issue through rapid urinary resorption. He advises that catheterization be employed only when acute retention supervenes; otherwise the interference should be restricted to the occasional introduction into the bladder of a full-sized metallic sound. This procedure proves useful in retention depending upon different causes, such as prostatic hypertrophy, paraplegia, etc. Patients learn, in the course of time, to urinate voluntarily, the urine approaches its normal condition, and the irritability of the viscus is markedly lessened. Only after a long persistence of the treatment by the sound, and further treatment being deemed necessary, should the catheter come into play; and even then the urine should not be fully evacuated until after many sittings, at the same time partially replacing the withdrawn urine by means of fluid.—*Annals of Surgery*, April, 1890.

Salol in the Treatment of Gonorrhœa.—For some time MR. J. ERNEST LANE (*Lancet*, March 22, 1890) has been testing the value of salol in all stages of gonorrhœa, in some cases relying solely upon its use, in others employing an astringent injection in addition. An analysis of the fifty cases treated shows that six were cured, twenty-four showed considerable improvement, in fifteen cases no change either for better or worse was noticed, while in five cases the symptoms were aggravated. The doses used were from five up to thirty grains, taken three times daily. The beneficial effects of salol manifest themselves in a very short time. When improvement takes place the symptoms show an abatement in from two to seven days; in acute cases the painful micturition is soon alleviated; in cases of a more chronic nature the discharge is materially lessened. In ten cases injections were employed in conjunction with salol; but he subsequently increased the dose of salol to ten, twenty, and in a few cases to thirty grains, and relied upon its internal administration without the assistance of injections. Out of forty cases so treated, an improvement was noticed in twenty within a week, while six were completely cured. Four hours after administration by the mouth of twenty grains of salol traces of carbolic and distinct evidence of salicylic acids, combined with other elements, were found in the urine. In one case the urine was blackened as in carboluria, the patient at that time taking thirty grains three times a day. It is said to be by the action of the pancreatic juice that salol is split up into carbolic and salicylic acids; of this change he was unable to procure any evidence, after having added pancreatin to a mixture of salol. In salol we have, in his opinion, a drug of considerable value in the treatment of gonorrhœa; its effect is apparently produced by the action of the urine upon the inflamed urethra, since that fluid contains salicylic and carbolic acids in combination, probably as salicylurates and sulphocarbolates. It may be given in doses of from ten to twenty grains three times daily at any stage of the disease, and in chronic cases an astringent injection will materially hasten the cure. The effect of the drug does not appear to be enhanced by larger doses than twenty grains; when the amount was increased to thirty grains, the urine became blackened and the symptoms did not show any proportionate improvement. He commenced by giving five-grain doses, but this was soon discovered to be too small a quantity.

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THE TREATMENT OF DISEASES OF THE UTERINE APPENDAGES.

THE universal law that action and reaction are equal finds frequent illustration in the swinging of the pendulum of medical opinion; active interference with and the removal of various organs of the human body are often followed by the establishment of some conservative method of treatment for the diseases of the organs in question. The zeal for laparotomy and extirpation of the uterine appendages has already passed its highest point, and is giving place to a less radical and more rational belief. The absurdity of invariably opening the abdomen has frequently been demonstrated by fruitless operations and by extraordinary mistakes in diagnosis.

Thus, a patient was very recently admitted to one of our hospitals with a history that while in early pregnancy the abdomen had been opened for the removal of a tumor; this tumor she now had with her, aged ten months, healthy and well developed, it being nothing less than the child which accompanied her. Fortunately, no harm was done by the laparotomy, and pregnancy was not interrupted; but certainly a more conservative method would in time have relieved the patient more safely and agreeably of her tumor.

A further illustration of excessive zeal resulting in imperfect and crude diagnosis is found in the case of a woman in whom double pyosalpinx was diagnosed by a laparotomist, and the fearful dangers to which the woman was exposed by reason of this condition were graphically portrayed. Falling into the hands of the hospital physicians to whom she was assigned, an examination of the patient revealed the fact that she was syphilitic, and that the pelvic tissues were infiltrated by syphilitic deposits; the patient was kept clean, put to bed, and treated by antisyphilitic medication, with the result of causing the alleged pyosalpinx to disappear. This case may represent some of the absurdities of the belief that laparotomy is the only reliable diagnostic means in disease of the uterine appendages.

An article by TRIPIER (*Bulletin Général de Thérapeutique*, March 30, 1890) describes a recent manual of gynecology by a French author, in which the anatomical description, the pathology, and operative procedures were most admirable, but in marked contrast with the therapeutics, which displayed a most lamentable paucity. After reviewing the various theories as to the origin of pelvic diseases in woman, Tripier describes his own success in the electrical treatment of congestions, inflammations, neuralgias, and defective development in the pelvic organs. His views represent those of a considerable number of gynecologists who are quite convinced that laparotomy and extirpation are not the panacea which they have been alleged to be, and that general and special therapeutics must be applied to the successful treatment of these cases, although it is true that electricians have undoubtedly been extravagant in their claims for success. It is an open question whether fibroid tumors of the uterus can be dissipated by electricity; that hæmorrhage from such tumors can be checked by the positive pole of an electric current is undoubted, and that pain can be relieved and the growth of such tumors often checked seem also true; but the danger of suppuration which not infrequently follows the attempt to dissipate uterine fibroids is so great as to throw doubt upon the value of this method. It does not seem rational to suppose for a moment that ovarian or tubal abscesses can be cured by electricity, especially when such abscesses follow specific infection, but that a simple salpingitis, or possibly hydrosalpinx, can be cured by this means there seems reason to believe, while chronic congestion about the uterus, defective uterine involution, pain referred to the pelvic organs, failure of proper development,

and exudates, the result of former inflammation, can undoubtedly be greatly benefited and in many cases cured by general therapeutics directed to the patient's general condition, and by electricity, douches, alterative applications, tampons, and the judicious employment of pessaries.

The somewhat remarkable statement that "the laparotomy craze is about over," was recently ascribed to a most radical laparotomist; but if such be the case, it is certainly a most hopeful condition of affairs. The fact that the statement was accompanied by the organization of a scheme for more extensive advertising to secure laparotomies from abroad gives credence to the belief that men of good judgment have ceased to be led away by the operative furor, and are recognizing the fact that it is the duty of every physician to give his patient the benefit of a careful study of her case, and the application of the science of therapeutics, with its potent resources, before recourse is had to the brilliant, but somewhat uncertain and often dangerous, methods of treatment by surgical interference.

"A WOLF IN SHEEP'S CLOTHING" AGAIN.

SOME months since we took occasion to criticise the business methods of a firm of opticians in this city who, for a number of years, have held an enviable position in regard to their relations to the medical profession.

Not content with having issued a circular in the early winter months, which was distinctly adverse to the welfare of the medical profession and themselves, they have but recently sent out "A Card to Physicians," in which they virtually offer to provide a thorough course of ophthalmology to any physician who may so distrust his fellows in the profession as not to be willing to receive their instruction, preferring that of the money-seeking optician.

While business push should always be coupled with business foresight, the medical profession of this city cannot but be amused at the methods to which certain persons are apparently forced to resort for the development of trade.

Perhaps before long they will provide hospital accommodations and courses in operative methods, unless they regard glasses as a universal panacea. If this same form of mental aberration extends to other trades connected with the medical profession, we may expect to have a truss-maker's school of herniotomy, or a gynecological clinic for teaching the proper fixation of pessaries or the employment of vaginal specula.

ELECTRICAL EXECUTION.

WE publish below an interesting letter from PROFESSOR J. WILLIAM WHITE on electrical executions. The fact that he has for so many years had ample opportunity to study the criminal classes renders his opinions worthy of careful attention. Execution of the death penalty by means of electricity is at present becoming more and more looked upon as the proper method of punishing the crime of murder, and this contribution will do much toward increasing the confidence in the propriety of the new method.

CORRESPONDENCE.

ELECTRICAL EXECUTION.

To the Editor of THE MEDICAL NEWS,

SIR: In reply to your polite request for my views in regard to the policy and method of the approaching execution under the present New York law governing capital punishment, substituting electricity for hanging, I send you a sketch of the line of argument which seems to me and to others who are for one reason or another interested in the criminal classes, to justify the present most important attempt to improve our methods.

In his essay on "Murder, Considered as One of the Fine Arts," De Quincey quotes the following sentence from Lactantius, named by St. Jerome "the Christian Cicero," famous at once for his piety and his polished eloquence: "If merely to be present at a murder fastens on a man the character of an accomplice; if barely to be a spectator involves us at once in one common guilt with the perpetrator, it follows of necessity that in these murders of the amphitheatre, the hand which inflicts the fatal blow is not more deeply imbued in blood than his who sits and looks on." Although he wrote of the gladiatorial contests of the courts of Diocletian and Constantine, and of the custom of giving criminals a mock chance for their lives while really dooming them to a barbarous and bloody death in the arena, his words apply with equal force to the highly civilized communities who have almost within the century witnessed the enforcement of inhuman and revolting death penalties with indifference or approbation. If those who sat idly on the benches at Rome or Byzantium were not guiltless of the crimes they saw enacted, were sharers in the guilt of unnecessary cruelty and barbarity, none the less are the intelligent and law-abiding peoples of the world to-day participants in whatever of injustice or inhumanity is enacted under the guise of law. The Anglo-Saxon race, in this country and the empire of Great Britain, is annually removing from its midst, extirpating, putting out of the world under the forms of law, several hundreds—possibly thousands—of its individual members. Admitting that it is justified in doing so by the necessity of establishing and upholding the public safety and welfare,

is the manner in which this public duty is performed all that could be desired from the standpoint of ordinary humanity? This question, which should be considered without sentimentalism, involves the determination of the most desirable (or least objectionable) form of execution, a subject which has of late years been of increasing interest to the intelligent public, and which, as time goes on, gains rather than loses in both practical importance and moral and humanitarian significance.

The rational discussion of the methods of capital punishment is, however, inseparable from a consideration of the objects of that punishment, as it is a case in which the end must justify the means. It is, perhaps, safe to say that from the time, not yet one hundred years ago, when, in such highly civilized countries as France and England, there were respectively one hundred and fifteen and one hundred and sixty offences punishable by death, down to the present day, the object of the death penalty in the eyes of legislators and lawgivers has been twofold: First, to protect society from the ravages of particular individuals, and, second, through them, to exercise a deterrent influence upon others of their class. Now, although the increased appreciation of the value and sanctity of human life prevents us from putting to death persons guilty of "heretical preaching" or of "carrying more gold or silver out of the country than is necessary for the voyage," or of "printing, selling, or circulating books without permission granted," offences still extant among us, the object of judicial executions remains the same and does not now, as it did not then, theoretically, include the idea of revenge. The most earnest advocate of capital punishment would probably be satisfied with the death of the individual in as speedy and painless a manner as possible if it were not for the thought of the second object aimed at—the deterrent influence upon the crime class.

The description which Sir Walter Scott gives in "The Heart of Midlothian" of the methods of execution in Edinburgh, recalls to the readers of *Waverley* the fact that until the beginning of the present century the criminals who were executed in Edinburgh were hanged in public at the eastern end of the Grass-market, to which place they were walked through public streets dressed in the shrouds in which they were to be buried, and were finally made to ascend a ladder to a considerable height to reach the platform on which the execution took place. Scott says, "This mode of execution is now (1830) exchanged for one similar to that in front of Newgate—with what beneficial effect is uncertain. The mental suffering of the convict is indeed shortened. He no longer stalks between the attendant clergymen, dressed in his grave-clothes, through a considerable part of the city, looking like a moving and walking corpse, while yet an inhabitant of this world; but as the ultimate purpose of punishment has in view the prevention of crimes, it may at least be doubted whether in abridging the melancholy ceremony, we have not in part diminished that appalling effect upon the spectators which is the useful end of all such inflictions, and in consideration of which alone, unless in very particular cases, capital sentences can be altogether justified."

It is probable, however, that this influence is more imaginary than real. In so far as it is supposed to affect the sensibilities of the habitual criminal, or arouse him to a realization of the enormity of his deeds, or awaken within him the feeling of remorse, I am convinced that it is a total failure. In 1875, when physician to the Eastern State Penitentiary of Pennsylvania, I endeavored to secure evidence in this direction by recording conversations which I held with some of the inmates convicted of the gravest crimes, in reference to their motives in committing those crimes and to their subsequent feelings.

Almost without exception the tone of their replies was unrepentant, or even jocular; so that, for example, a man who had knocked down his unoffending wife and kicked her in the stomach until she died, could laugh in talking about it, and say he "guessed she was better off." Within a few days I have repeated this experience in a number of instances. One example of many must suffice.

A man undergoing a heavy sentence for a murder of unexampled atrocity, surrounded by the most shocking circumstances, was asked if the thought of the crime never troubled him. I found that he never thinks of it at all, except when he takes his bath; then he sees the scar of a wound made by an accomplice, with whom he said he was determined to "get even" when he goes out, many years hence. An educated Englishman, who, for some commercial crime, served his time in Newgate, Millbank, and Dartmouth, and who has recorded his experience in an instructive work called *Five Years' Penal Servitude*, says of some of his fellow-convicts that they were "brutes in mind and demons in heart—irreclaimable, and not at all amenable to any ordinary moral influence. As a rule, they are as cowardly as they are brutal, their criminal instincts and propensities predominating to the almost total exclusion of any intellectual or human feeling." No one was more familiar with this fact and this class of criminals (found in larger proportions, it is said, among the roughs of London than elsewhere in the civilized world) than was Dickens, and in his last book—*Edwin Drood*—he calls attention to "the criminal intellect which its own professed students perpetually misread, because they persist in trying to reconcile it with the average intellect of average men, instead of identifying it as a horrible wonder apart."

Any one unfamiliar with the criminal character who doubts this frequent and truly remarkable absence of remorse, will probably be convinced by reading carefully the records of great prisons, or lives of great malefactors,[1] and will, I am sure, if they read understandingly, be convinced as to the absence of the moral sense in many criminals in whom, as Dr. Oliver Wendell Holmes has said in an article on "Crime and Automatism," "Nothing stands in the way of the selfish motive which leads to crime, except some stronger selfish motive."

[1] To those who may be inclined to take an interest in the general subject of the peculiarities of the crime class, I must recommend a perusal of the following works as introductory to the question, and as most interesting in themselves: Old Bailey Experience; Chronicles of Newgate; Lives of Celebrated Criminals; Crime, by Frederick Hill; Inspectors of Prisons. The Reports of the Eastern Penitentiary, written chiefly by my distinguished townsman, Hon. Richard Vaux, contain a mine of information upon the same subject. I should also include the work recently published by Inspector Byrnes, of New York, on the professional criminals of this country.

Julian Hawthorne has cleverly described the same peculiarity of habitual criminals (doubtless communicated to him by Mr. Byrnes) through the conversation of an imaginary journalist in one of his recent novels.

Col. Sir Edmund Du Cane, Inspector General of Prisons of Great Britain, records (*The Punishment and Prevention of Crime*) a quotation from an intercepted letter from a convict in Western Australia (where there is a law making a murderous assault on a warden a capital offence) to a friend at home: "They top [hang] a cove out here for slogging a bloke. That bit of rope, dear Jack, is a great check on a man's temper." That graphically indicates about the maximum deterrent influence of any form of execution.

The members of the crime class calculate shrewdly the chances of conviction and punishment; feeling little or no remorse, their only fear is of the law, and they are quite clever enough to know that in proportion to the horrible or revolting character of a death penalty the difficulty of a conviction under a jury system increases. Through my connection with the Eastern Penitentiary as physician, in 1874, 1875, 1876, and of late years as Inspector, I have known, or known of, many of the worst criminals of America, and I feel sure that if they and their associates could be polled they would vote for hanging in preference to any more humane method of execution, as they would for drawing, quartering, and disembowelling in preference to hanging. Punishment is effective with them as a deterrent influence in proportion to its certainty—not to its severity. Hazlitt, who for controversial purposes, questioned the truth of this maxim, practically admitted it later when he wrote: "When a moderate punishment is strictly and vigorously enforced, and a severe punishment is as generally and systematically evaded, the mind will undoubtedly be more affected by what it considers as a serious reality than by what it will regard as an idle threat." Unnecessary brutality as to the form of execution is in its effect upon juries or upon those entrusted with the exercise of the pardoning power precisely similar to unnecessary severity in the apportionment of the punishment to the crime. The Mikado's song expresses a principle of criminal jurisprudence which cannot be ignored without defeat of the very object of the law. The inherent sense of justice and right prevailing in all large communities will not permit them, when, as in modern times, they have power and freedom, to acquiesce in the workings of an inhuman statute. In the reign of Henry VIII. it is said 72,000 persons, or 2000 *per annum*, were executed. In England, from 1813 to 1833, 23,700 persons were convicted of capital crimes, of which number 933, or only about 1 in 25 were executed. Nothing could be more evil in its effect upon the crime class than the existence and practical nullification of such laws. Their glaring injustice doubtless led Dr. Benjamin Rush, in a memorial written in 1792, to protest against "the killing of one kind of murderer, while allowing the escape of quack doctors and a licentious press, who often destroy life and frequently with malice of a most prepense nature." A half century later Mr. Sharswood asserted that, on account of the death penalty and of its manner of execution, 'no crime was so likely to escape with impunity in Pennsylvania' as that of deliberate and wilful murder."

The New York Commission to Investigate and Report the Most Humane and Practical Method of Carrying into Effect the Sentence of Death in Capital Cases, in its report published some time since, expressed the following views on these points:

(1) That the effort to diminish the increase of crime by the indiscriminate application of capital punishment to various offences, involving different grades of moral turpitude, or, in other words, by the enlarging of the number of offences to which capital punishment is made applicable, has proved a failure.

(2) That any undue or peculiar severity in the mode of inflicting the death penalty neither operates to lessen the occurrence of the offence, nor to produce a deterrent effect.

If the above premises are sound, and if in addition those who believe in capital punishment recognize the policy of not needlessly furnishing arguments either to humanitarian agitators of the question or to the counsel for defendants in murder cases, the discussion of the preferable method of execution can be approached with the well-defined idea that the object aimed at is an instantaneous death without pain and without the possibility of shocking or repulsive circumstances of any description. The conclusions of the Commission quoted above will afford an excellent basis for the consideration of this part of the subject. They were as follows:

(1) That the present method of inflicting the death penalty be abolished, and, as a substitute, that a current of electricity, of sufficient intensity to destroy life instantaneously, be passed through the body of the convict.

(2) That every such execution take place in a State prison, to be designated by the court in its judgment and death warrant, and that the time of the execution be not fixed by the court, except by designating a period within which it must take place.

(3) That immediately after the execution a post-mortem examination of the body be made by the physicians present, and the remains be handed over to the medical profession for further dissection, or be buried without ceremony in the prison cemetery or graveyard, with sufficient quicklime to insure their immediate consumption.

(4) That the public accounts of the execution be limited as regards to details.

These admirable suggestions will appeal the more strongly to both reason and sentiment after a brief consideration of the physiology of hanging.

The principal modes of death by hanging as shown by autopsies are: 1st. Suffocation from pressure on the windpipe producing complete obstruction to respiration; 2d. Dislocation or fracture of the spinal column with consequent injury to the spinal cord. 3d. Congestion of the heart or apoplexy from the arrest of the return of blood from the head to the heart, the result of compression of the great bloodvessels of the neck. 4th. Injury inflicted by violent and prolonged pressure on the important nerves of the neck. The proportion in which these results follow hanging are variously estimated, but, as a rule, the conditions are more or less mixed. The amount of pain and distress excited by them must also vary considerably, but is probably inversely proportionate to the completeness and severity of the injury. Total obstruction of respiration, complete dislocations or fractures of the neck, extensive apoplexies doubtless cause painless and rapid death, but if the rope is above or upon

instead of below the larynx (as in suicidal hanging it was found to be in 140 out of 143 cases) suffocation is probably slow, and attended with the preliminary agony of a hopeless and helpless struggle for life. After asphyxia has begun the testimony is unvarying as to its painless character. Such testimony, of course, consists of the evidence of persons who have been resuscitated after apparent death from suffocation. The celebrated case of Hornshaw, who gave public exhibitions of so-called "hanging" in London, suspending himself by the neck, is in point. He became unconscious on three occasions, and was with difficulty resuscitated. On the last occasion, he says that, although he very soon lost his senses, he passed through a period during which he felt as if some great weight was attached to his feet, and he had the desire without the ability to take a breath—surely one of the most distressing sensations of which human beings are capable. Numerous similar descriptions are found in the records of unsuccessful hangings dating back as far as 1705, when one Smith, who was resuscitated, used almost the same expressions in recounting his experience. Captain Marryatt, the novelist, who was one resuscitated after apparent death from drowning, describes his feelings as rather pleasant, speaking of the sensation as similar to that of lying down in a green field, with the grass waving, the sun shining, etc.

It is usually assumed, I think, that if total and immediate obstruction to breathing could be assured in every case, hanging would be a reasonably humane method of execution. After all, however, this is mere conjecture. Our evidence upon the point is naturally limited, and when we further assert that the writhings and convulsions, which sometimes last for many minutes, during which time the heart continues to beat, and resuscitation is often possible, are merely reflex, and are not attended with sensation, our assertion, even if probably true, is not demonstrably so. The questions propounded by a writer in the *North American Review* are difficult to answer: "Who knows the last agony of the death struggle? Who knows its real duration in the opinion of him who is the last judge? Who can understand strangulation? Who knows through what a universe of misery flashes or struggles the soul of the sufferer?"

A further difficulty in approving this form of execution lies in the circumstances practically surrounding the operation as performed at this day in all parts of the United States and Great Britain; the clumsiness or nervousness of the officials, the occasional struggles of the condemned, the imperfections of the apparatus, etc. As the same writer has put it: "Some people are much better hanged than others. There must be as much difference between good and bad hanging as between entirely distinct ways of inflicting the death penalty." It is highly probable that in the majority of cases comparatively slow and painful suffocation occurs from a combination of these factors. As to the other causes of death the same remarks apply, even more forcibly. Dislocation of the neck was found by Devergie only once in 52 cases, and Taylor says that to secure it the body must be heavy, the fall sudden and long, and considerable violence used by the executioner—*i. e.*, by giving the body of the criminal a violent twist or rotatory movement the moment it is turned off. Apoplexy occurred only 9 times in 85 cases, and death by injury to the nerves of the neck—a rare circumstance, fortunately—must be exceptionally painful. We probably hear the whole truth in relation to comparatively few of the bungled and mismanaged hangings, attended with the greatest agony, and most disgusting in their details, as the information would naturally be suppressed by those chiefly concerned, and who may have been actuated by a proper spirit, but ignorant of proper methods. Certainly, although we have improved upon the executions of our forefathers, when hanging was originally only a means of deadening sensation preparatory to drawing, quartering, burning with hot irons, etc., and when criminals on the way to the scaffold were exposed for hours to the hoots and peltings of a merciless mob, we still have much to hope for in the way of improvement. When guillotining was made the law of France in 1792 by the act of the Assembly, who, in adopting the celebrated law *Tout condamné a mort aura la tête tranchée*, provided that the cutting off should be by means of a "simple mechanism," it was regarded as a humanitarian step, and was indeed a vast improvement upon the decapitation by means of an axe in the hands of an ignorant, often a drunken or crazy, executioner.

The gallows of those days, both in France and England, a rude structure beneath which the condemned was driven in a cart, which, after the adjustment of the noose was driven away, was surely far behind the guillotine in effectiveness and neatness of action. The famous Louis, perpetual secretary of the Academy of Surgery, and one of the great scientists of the day, approved of the latter and suggested many of its details. It carries with it, however, the revolting element of dismemberment and deformity, and is further complicated by the doubt, as old as the century and originally suggested in 1793 by Sömmering the anatomist, as to whether the severed head may not for a short period retain consciousness and intelligence. The mere suggestion is enough! The question was thought to have been decided in the negative, but has been re-awakened by recent scientific experiments upon decapitated animals and upon criminals. Charcot presented, a few months ago, to the French Academy a record of observations upon the head of a criminal who had been decapitated. The criminal did not blanch (as is naturally usual) when placed in position, and the color of the face retained its life-like appearance for at least a minute. For five seconds a touch of the end of a finger to the globe of the eye brought about a quick closing of the lids. The jaws were firmly closed and could not be opened even by energetic efforts. Brown-Séquard had shown some time ago that by injecting fresh blood into the severed heads of dogs the muscles reacted, the eyes moved, and evidences of sensation were present. Last April similar experiments were made upon the head of the murderer Gamahut, a French criminal who suffered decapitation for his crime. Under the influence of transfused blood the face regained its color, the eyelids opened, and the lips quivered and seemed to be trying to speak. The account reminds one of the picture in the Musée Wiertz in Brussels—"*Pensées et visions d'une Tête coupée*," which, together with the other horrors of that curious collection, leaves an indelible remembrance.

In the face of the evidence as to continuance of sen-

sibility, though it is far from conclusive, and though the general probability points strongly in the other direction, and in view of the other objections which have been mentioned, guillotining hardly seems the most desirable method of capital punishment.

Garroting, as employed in Spain, is as uncertain as hanging, and even more unpleasant in its details. It is intended to consist of a combination of strangling and fracture or dislocation of the spine, but is clumsy and unreliable. The use of poison by the mouth would often involve a shocking struggle with the prisoner; by hypodermic injection would convert the executioner into a veritable Jack Ketch, who would doubtless feel himself almost as much a murderer as the condemned. Certainly the function would be revolting and almost impossible to a man of intelligence or refinement.[1] Shooting is open to the same objection, *i. e.*, the need of direct personal intervention.

The testimony as to the instantaneous character of deaths from lightning-stroke and, of recent years, from contact with the wires of powerful batteries used for industrial purposes, has led many to believe that in this direction we must look for a satisfactory solution of the problem.

At a meeting of the French Academy of Sciences held last spring a report was made upon some recent studies as to the mode of death by electricity, and it was shown that when the circumstances were favorable—*i. e.*, when the current was sufficiently strong and the resistance to its passage the greatest—death occurred through actual disintegration of the blood, as well as of the nerves and muscular tissue.

The details could most readily be suggested or arranged by electrical experts.[2]

The proceeding could be conducted with the minimum of uncertainty, and the person giving the final touch which completed the connection could do so from a considerable distance, and need not necessarily have seen the prisoner. I believe this is not unimportant, as I feel sure from a single experience that no one of ordinary sensibility can even look upon the most carefully conducted execution under our present laws without either great disturbance of feeling or positive brutalizing results. This must be vastly increased with those who have the unpleasant duty of actually carrying the method into effect.

If, in addition to a change in the mode of execution, there could be added modifications in the law, shortening the time after sentence to which by the efforts of ingenious counsel life could be prolonged, and if, during that time, the prisoner was absolutely sequestrated—was already dead to the external world—we might avoid the exhibitions of hysterical and irrational sympathy, and of mock or maudlin repentance, which are now so common. Then, too, it would be true mercy to the criminal to shorten that time, the horrible tediousness of which with the agonizing changes from hope to despair, and then to hope again, have been so vividly depicted by Victor Hugo in the *Dernier Jour d'un Condamné*, and which must be a thousandfold worse and more unendurable than the physical suffering of even the most inhuman execution.

It is earnestly to be hoped that the technical difficulties which surround the present effort to introduce an improved and scientific method of capital punishment may not be found insurmountable.

Very respectfully,

J. WILLIAM WHITE, M.D.

[1] The New York Commission in the report above quoted makes the following just criticism of the method by poison: "Various suggestions have been made as to the means of accomplishing such a result. One has been the injection of a violent and sudden poison, such as prussic acid, by means of the hypodermic needle, into the body of the condemned, which is open to the very serious objection that the use of that instrument is so associated with the practice of medicine and as a legitimate means of alleviating human suffering, that it is hardly deemed advisable to urge its application for the purposes of legal executions against the almost unanimous protest of the medical profession."

[2] The Report of the New York Commission as to these points reads as follows: The most certain way to produce death would be to pass the current down the spinal cord from the crown of the head, as by the sudden application of wet surfaces or sponges. The result would be, with a sufficiently strong current of the proper character, a painless extinction of all the faculties; and the current being kept on for a little time, would result in such complete nervous exhaustion as to forbid any possibility of resuscitation by any means whatever. The best appliance in this direction is the one which will perform its work in the shortest space of time and inflict the least amount of suffering upon its victim. This can be accomplished by the use of electricity, and the most suitable apparatus for the purpose is that class of dynamo-electric machinery which employs intermittent currents.

The most effective of these are known as "alternating machines." The passage of the current from these machines through the human body, even by the slightest contact, produces instantaneous death.

That the ordinary electric light current used in these experiments is sufficient to cause instantaneous death of a human being is inferred from the many accidental deaths produced by such means. To witness the effect produced upon the heart in action is a demonstration which cannot be questioned, and offers a positive proof that death produced by a sufficiently powerful electric current is the most rapid and humane produced by any agent at our command; that resuscitation, after the passage of such a current through the body and functional centres of the brain is impossible; that the apparatus to be used should be arranged to permit the current to pass through the centres of function and intelligence in the brain.

NEW ORLEANS.

To the Editor of THE MEDICAL NEWS,

SIR: At the recent commencement exercises of Tulane University there were 93 graduates in the medical department; the class that attended the past session being the largest in the history of the medical college, numbering 373 students, principally from the Southern States.

It is a matter of surprise that this excellent institution, that for forty-six years has enjoyed deserved reputation in the South, and that still retains high lecture fees, has not yet instituted a three-years' graded course of medical instruction, and has not enlarged its faculty beyond the old-time number of seven professors. While the faculty recommend a three-years' course, and many students take it, the instruction is not graded. In 1889, a microscopical laboratory was opened, but it proved at once to be inadequate for the class in attendance. It is understood that the faculty have under consideration the importance of enlarging the present laboratory; of opening

a physiological and pharmacological laboratory; and, possibly, of making a three-year graded course compulsory and increasing the membership of the faculty. This would make the institution second to none. It has no competitor in this city, and the material at Charity Hospital is for its exclusive use.

This latter institution, supported largely in the past by the fees received from the notorious lottery company, treated, during the year 1889, 6445 patients; of whom about two-thirds were white. Notwithstanding the fact that all classes of diseases—those of the tropic as well as of temperate zones—were treated, the mortality was only fourteen per cent., and this would be reduced to eleven per cent. if cases that were fatal within the first twenty-four hours were not included. In the outdoor department, 13,938 patients were treated with an average of six visits each.

There are some peculiar features in the administration of the institution. The internes, instead of being graduates in medicine, are undergraduates; it being alleged that if graduates—that are disqualified for the position because they have the degree of M.D.—were employed, they might leave the hospital for outside practice in the event of an epidemic of yellow fever. The internes are called resident students, are appointed by competitive examination, and may, on passing another examination, be re-appointed for a second year's service.

While ostensibly the nursing is done by Sisters of Charity, actually it is largely performed by recovered patients, who often do this service for months with no remuneration save lodging and food. While, from an economical standpoint, such an arrangement may be satisfactory, it is hardly in the best interests of the patients, and is often a source of annoyance to the staff of visiting physicians and surgeons.

The Polyclinic has just opened its session, which will continue during April and May. It has an excellent faculty of thirteen lecturers, and the attendance is quite large.

The Louisiana State Medical Society will hold its annual meeting at Bâton Rouge on May 13th, but it is feared that the high water will seriously interfere with the attendance at the meeting.

The New Orleans Medical Society has just lost its president, Dr. Davidson, who died at the age of seventy-eight years; having been engaged in active practice for the past fifty-six years. His death was due to pneumonia following influenza.

While the influenza has not been as severe here as it seems to have been in the North, there have been a number of cases.

Dr. Joseph Jones, Surgeon-General of the Confederate Veterans, has addressed a circular to the survivors of the medical corps of the Confederate States Army, requesting data regarding the *personnel* of the corps; obituary notices of deceased members; and titles and copies of all published and unpublished reports relating to hospital work, military surgery, and diseases of armies, camps, hospitals, and prisons. It is his intention to publish the material collected.

The terms of several of the members of the Louisiana Board of Health having ended, the late president, Dr. C. P. Wilkinson, who has carried out Dr. Holt's quarantine policy, retires. He is succeeded by Dr. S. R. Olliphant, who is an able physician, and, as vice-president of the Board during Dr. Holt's administration, is familiar with the best quarantine policy for this State.

The Eye, Ear, Nose, and Throat Free Hospital having treated, during the first four months of its existence, 1542 persons, with 9203 consultations, has concluded that its resources are taxed by persons able to pay, and has called for a conference of the authorities of free dispensaries in the city to devise a means to remedy the abuse. In the future, it will charge a record fee of ten cents for each case.

PARIS.

The Treatment of Sprains. Uræmia. Fatigue as a Predisposing Cause of Infectious Diseases.

To the Editor of THE MEDICAL NEWS,

SIR: At one of his recent clinics at the Hospital Broussais, Dr. Paul Reclus spoke on the treatment of sprains. After having reviewed the methods ordinarily employed, he described his method as applied to a sprained ankle. First, an elastic bandage is applied, extending from the toes up to the middle of the leg, with just sufficient pressure to keep it in place; and the patient is told that if the pressure is at all painful he must remove the bandage. If the sprain is not a severe one the patient may be allowed to move about. Morning and night the bandage is removed, and the joint is immersed in warm water the temperature of which is gradually raised to 122° F., or to as high a point as can be borne. In ten or fifteen minutes the foot is removed and dried, and massage is employed about the ankle for the same length of time, after which the bandage is reapplied. According to Dr. Reclus, this is by far the most rapid and satisfactory method that can be employed for the cure of sprains, and in some cases the result is quite remarkable.

Professor Renaut has communicated an interesting paper upon Bright's disease to the Academy of Medicine, in the course of which he gave his views upon the treatment of uræmia. In the prevention of this condition he follows the usual dietetic rules and, in addition, advises the use of dry cups twice daily, and the occasional application of leeches. During the attack efforts must be made to reduce the congestion of the kidneys. This can be best accomplished by venesection followed by the daily application of leeches until the secretion of urine is again properly established. Leeches, Dr. Renaut thinks, are better than scarification or wet cups. The next indication, according to this observer, is to increase the intra-vascular pressure by the administration of large quantities of fluids—milk or water. If the patient will not swallow water freely, eight ounces may be given by the rectum every two or three hours. Not only is the arterial pressure raised in this manner, but the more or less toxic substances which accumulate in the tissues are rendered more soluble. Finally, almost continuous inhalations of oxygen gas are to be used. The oxygen will act on the nervous system and on interstitial tissue changes which take great part in the destruction of the toxines which are retained in the tissues.

Drs. Charrin and Rogers have been studying the influence of fatigue as predisposing to microbic disease. Rats were used in the experiments, and were kept in

constant motion for about seven hours daily in a revolving cage. The microbes employed were the bacillus of anthrax and the bacillus of symptomatic carbuncle. The experiments proved beyond a doubt that the animals worn out by exertion were much more susceptible to these diseases than animals which had not been exerting themselves.

NEWS ITEMS.

Confederate States Army Medical Corps.—The following letter, addressed to the survivors of the Medical Corps of the Confederate Army, has been received:

"The surrender of the Army of Northern Virginia, on April 9th, twenty-five years ago, practically ended the struggle for the independence of the Southern States, and during this quarter of a century death has thinned our ranks, and our Corps can now oppose but a broken line in the great struggle against human suffering, disease, and death. S. B. Moore, Surgeon-General of the Confederate Army, is dead. Surgeons L. Guild, A. J. Foard, J. H. Berrien, J. T. Darby, W. A. Carrington, F. A. Ramsey, Samuel Choppin, R. J. Breckinridge, E. N. Covey, E. S. Gilliard, E. A. Llewellen, A. N. Tally, Paul F. Eve, D. F. Manson, Louis D. Ford, Habersham, James Bolton, and a host of other medical officers of the Confederate States Army are dead.

"The Association of the United Confederate Veterans was formed in New Orleans in 1888 with historical, social, and benevolent objects. Our illustrious Commanding General, John B. Gordon, Governor of Georgia, has ordered the United Confederate Veterans to assemble in Chattanooga, Tenn., on July 2, 1890. It is earnestly hoped that every surviving member of the Medical Corps of the Confederate Army will meet with the United Confederate Veterans on this important occasion, and promote, by his presence and his counsels, the sacred interests of the Association. It is of the greatest importance to the future historian, and also to the honor and welfare of the medical profession in the South, that careful records should be furnished the Surgeon-General of the United Confederate Veterans, embracing the following data:

"1. Name, age, nativity, date of commission in the Confederate States Army, nature and length of the service of each and every member of the Medical Corps of the Confederate States Army.

"2. Obituary notices and records of all deceased members.

"3. The titles and copies of all field and hospital reports.

"4. Titles and copies of all published and unpublished reports relating to military surgery and diseases of armies, camps, hospitals, and prisons.

"The object is the collection, classification, preservation, and final publication of all the documents and facts bearing upon the history and labors of the Medical Corps of the Confederate States Army during the Civil War. Everything which relates to this critical period of our national history which shall illustrate the patriotic, self-sacrificing, and scientific labors of the Medical Corps should be industriously collated, filed, and finally published.

"It is believed that invaluable documents are scattered over the land in the hands of survivors of the War which will form material for correct delineation of the Medical History of the Corps which played so important a part in the great historic drama. Death is daily thinning our ranks, while time is laying its heavy hands upon the heads of those whose hair is already whitening with the advance of years and the burden of care.

"No delay, fellow-comrades, should be suffered in the collection and preservation of these precious documents. This task of collection of all documents, cases, and facts relating to the Medical History of the Confederate Army invites the immediate attention and coöperation of his honored comrades and beloved compatriots throughout the South. Respectfully your obedient servant,

"JOSEPH JONES, M.D.,
"Surgeon-General United Confederate Veterans.
"756 WASHINGTON AVENUE, NEW ORLEANS."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 15 TO APRIL 21, 1890.

LA GARDE, LOUIS A., *Captain and Assistant Surgeon.*—Upon surgeon's certificate of disability, on account of sickness, leave of absence for twenty-three days is granted, in extension of leave of absence for seven days, granted him by Order No. 74, Fort Assiniboine, Montana, with permission to apply to the Adjutant-General of the Army for an extension of one month, on surgeon's certificate of disability.—Par. 4, *S. O. 43, Department of Dakota*, April 14, 1890.

By direction of the Secretary of War, PETER J. A. CLEARY, *Major and Surgeon*, is relieved from duty at Fort Wingate, New Mexico, and will report in person to the commanding officer Mount Vernon Barracks, Alabama, for duty at that station, and by letter to the commanding general Division of the Atlantic.—Par. 6, *S. O. 90, A. G. O., Washington*, April 17, 1890.

By direction of the Secretary of War, WASHINGTON MATTHEWS, *Major and Surgeon*, is relieved from duty in the Surgeon-General's Office, this city, and will report in person to the commanding officer Fort Wingate, New Mexico, for duty at that station.—Par. 6, *S. O. 90, A. G. O., Washington*, April 17, 1890.

By direction of the Acting Secretary of War, so much of Par. 2, S. O. 83, A. G. O., April 9, 1890, from this office, as directs the transfer of WILLIAM STEPHENSON, *Captain and Assistant Surgeon*, from Fort Verde, Arizona Territory, to David's Island, New York, is so amended as to substitute the words "Columbus Barracks, Ohio," in place of David's Island.—Par. 1, *S. O. 89, A. G. O., Washington, D. C.*, April 16, 1890.

MIDDLETON, PASSMORE, *Major and Surgeon* (St. Francis Barracks, Florida).—Is hereby granted leave of absence for two months, on surgeon's certificate of disability.—Par. 1, *S. O. 85, Headquarters Division of the Atlantic*, April 12, 1890.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING APRIL 19, 1890.

BEYER, H. G., *Passed Assistant Surgeon.*—Ordered to the U. S. S. "Yantic."

MCCARTY, RUFUS H., *Passed Assistant Surgeon.*—Died April 12, of pneumonia, on the U. S. S. "Yantic," at Key West, Florida.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*